

L-Parser

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Chapter 1

Namespace Index

1.1 Namespace List

Here is a list of all documented namespaces with brief descriptions:

LParser	The namespace used by the LParser	7
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Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

exception	
LParser::ParserException	15
LParser::LSystem	9
LParser::LSystem2D	11
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Chapter 3

Class Index

3.1 Class List

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

LParser::LSystem	This is the Base Class used by LParser2D and LParser3D	9
LParser::LSystem2D	This class represents a 2D-LSystem	11
LParser::LSystem3D	This class represents a 3D-LSystem	13
LParser::ParserException	The exception thrown when an invalid file is read	15

Chapter 4

Namespace Documentation

4.1 LParser Namespace Reference

The namespace used by the [LParser](#).

Classes

- class [ParserException](#)
The exception thrown when an invalid file is read.
- class [LSystem](#)
This is the Base Class used by LParser2D and LParser3D.
- class [LSystem2D](#)
This class represents a 2D-LSystem.
- class [LSystem3D](#)
This class represents a 3D-LSystem.

Functions

- `std::ostream & operator<< (std::ostream &out, LSystem2D const &system)`
Writes an [LSystem2D](#) to an output stream.
- `std::istream & operator>> (std::istream &in, LSystem2D &system)`
Reads an [LSystem2D](#) from an output stream.
- `std::ostream & operator<< (std::ostream &out, LSystem3D const &system)`
Writes an [LSystem3D](#) to an output stream.
- `std::istream & operator>> (std::istream &in, LSystem3D &system)`
Reads an [LSystem3D](#) from an output stream.

4.1.1 Detailed Description

The namespace used by the [LParser](#).

4.1.2 Function Documentation

4.1.2.1 `std::ostream & LParser::operator<< (std::ostream & out, LParser::LSystem2D const & system)`

Writes an [LSystem2D](#) to an output stream.

Parameters

<i>out</i>	The outputstream to write the LSystem2D to
<i>system</i>	The L-System to be written

Returns

The outputstream the L-System was written to

4.1.2.2 `std::ostream & LParser::operator<< (std::ostream & out, LParser::LSystem3D const & system)`

Writes an [LSystem3D](#) to an output stream.

Parameters

<i>out</i>	The outputstream to write the LSystem2D to
<i>system</i>	The L-System to be written

Returns

The outputstream the L-System was written to

4.1.2.3 `std::istream & LParser::operator>> (std::istream & in, LParser::LSystem2D & system)`

Reads an [LSystem2D](#) from an output stream.

Parameters

<i>in</i>	The input stream to read the LSystem2D from
<i>system</i>	The L-System object in which the parsed LSystem is to be stored

Returns

The input stream from which the L-System was read

4.1.2.4 `std::istream & LParser::operator>> (std::istream & in, LParser::LSystem3D & system)`

Reads an [LSystem3D](#) from an output stream.

Parameters

<i>in</i>	The input stream to read the LSystem2D from
<i>system</i>	The L-System object in which the parsed LSystem is to be stored

Returns

The input stream from which the L-System was read

Chapter 5

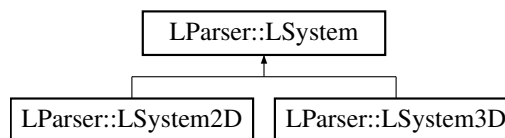
Class Documentation

5.1 LParser::LSystem Class Reference

This is the Base Class used by LParser2D and LParser3D.

```
#include <lparser.h>
```

Inheritance diagram for LParser::LSystem:



Public Member Functions

- `std::set< char > const & get_alphabet () const`
returns the Alphabet of the L-System
- `bool draw (char c) const`
Draw function. Returns true if a line needs to be drawn for this character.
- `std::string const & get_replacement (char c) const`
Replacement function. Returns the replacement string for a given character of the Alphabet.
- `double get_angle () const`
Returns the angle of the L-System.
- `std::string const & get_initiator () const`
Returns the initiator string of the L-System.
- `unsigned int get_nr_iterations () const`
Retruns the number of times a symbol must be replaced by it's replacement string.

Protected Member Functions

- `LSystem ()`
Constructor: creates an empty LSystem.
- `LSystem (LSystem const &system)`
Copy-constructor: creates a new L-System from an existing L-System.
- `virtual ~LSystem ()`
Destructor.

- `LSystem & operator= (LSystem const &system)`
Assignment operator.

Protected Attributes

- `std::set< char > alphabet`
the alphabet of the l-system
- `std::map< char, bool > drawfunction`
the draw function mapping of the l-system
- `std::string initiator`
the initiator string of the l-system
- `double angle`
the angle of the l-system
- `std::map< char, std::string > replacementrules`
the replacement rules of the l-system
- `unsigned int nrIterations`
the number of replacements of the l-system

5.1.1 Detailed Description

This is the Base Class used by LParser2D and LParser3D.

5.1.2 Constructor & Destructor Documentation

5.1.2.1 LParser::LSystem::LSystem (LSystem const & system) [protected]

Copy-constructor: creates a new L-System from an existing L-System.

Parameters

<code>system</code>	The L-System to be copied
---------------------	---------------------------

5.1.3 Member Function Documentation

5.1.3.1 bool LParser::LSystem::draw (char c) const

Draw function. Returns true if a line needs to be drawn for this character.

Parameters

<code>c</code>	the character of the alphabet
----------------	-------------------------------

Returns

whether a line needs to be drawn for the character

5.1.3.2 std::set< char > const & LParser::LSystem::get_alphabet () const

returns the Alphabet of the L-System

Returns

a const reference to the vector containing the alphabet

5.1.3.3 double LParser::LSystem::get_angle () const

Returns the angle of the L-System.

Returns

the angle used by the [LSystem](#)

5.1.3.4 std::string const & LParser::LSystem::get_initiator () const

Returns the initiator string of the L-System.

Returns

the initiator string of the L-System

5.1.3.5 unsigned int LParser::LSystem::get_nr_iterations () const

Returns the number of times a symbol must be replaced by its replacement string.

Returns

the number of replacements;

5.1.3.6 std::string const & LParser::LSystem::get_replacement (char c) const

Replacement function. Returns the replacement string for a given character of the Alphabet.

Parameters

<i>c</i>	the character of the alphabet
----------	-------------------------------

Returns

replacement string

5.1.3.7 LParser::LSystem & LParser::LSystem::operator= (LParser::LSystem const & *system*) [protected]

Assignment operator.

Parameters

<i>system</i>	the L-System to be copied
---------------	---------------------------

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

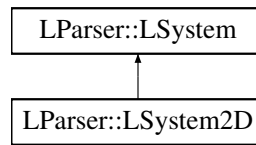
- lparser.h
- lparser.cc

5.2 LParser::LSystem2D Class Reference

This class represents a 2D-LSystem.

```
#include <lparser.h>
```

Inheritance diagram for LParser::LSystem2D:



Public Member Functions

- [LSystem2D](#) ()
Constructor.
- [LSystem2D](#) ([LSystem2D](#) const &system)
Copy Constructor.
- [LSystem2D](#) (std::istream &in)
Constructor: reads the [LSystem](#) from an input stream.
- [LSystem2D](#) & operator= ([LSystem2D](#) const &system)
Assignment operator. Assigns another [LSystem](#) to this object.
- double [get_starting_angle](#) () const
Returns the starting angle of the 2D L-System.

Protected Attributes

- double [startingAngle](#)
the starting angle of the 2D-LSystem

Friends

- std::istream & operator>> (std::istream &in, [LSystem2D](#) &system)
Reads an [LSystem2D](#) from an output stream.

Additional Inherited Members

5.2.1 Detailed Description

This class represents a 2D-LSystem.

5.2.2 Constructor & Destructor Documentation

5.2.2.1 LParser::LSystem2D::LSystem2D ([LSystem2D](#) const & system)

Copy Constructor.

Parameters

system	The L-System to be copied
------------------------	---------------------------

5.2.2.2 LParser::LSystem2D::LSystem2D (std::istream & in)

Constructor: reads the [LSystem](#) from an input stream.

Parameters

<i>in</i>	The input stream from which the L-System is to be read
-----------	--

5.2.3 Member Function Documentation

5.2.3.1 double LParser::LSystem2D::get_starting_angle () const

Returns the starting angle of the 2D L-System.

Returns

the starting angle of the L-System

5.2.3.2 LParser::LSystem2D & LParser::LSystem2D::operator= (LParser::LSystem2D const & system)

Assignment operator. Assigns another [LSystem](#) to this object.

Parameters

<i>system</i>	The L-System to be assigned to this object
---------------	--

5.2.4 Friends And Related Function Documentation

5.2.4.1 std::istream& operator>> (std::istream & in, LSystem2D & system) [friend]

Reads an [LSystem2D](#) from an output stream.

Parameters

<i>in</i>	The input stream to read the LSystem2D from
<i>system</i>	The L-System object in which the parsed LSystem is to be stored

Returns

The input stream from which the L-System was read

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

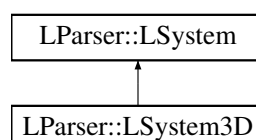
- lparser.h
- lparser.cc

5.3 LParser::LSystem3D Class Reference

This class represents a 3D-LSystem.

```
#include <lparser.h>
```

Inheritance diagram for LParser::LSystem3D:



Public Member Functions

- [LSystem3D](#) ()
Constructor.
- [LSystem3D](#) ([LSystem3D](#) const &system)
Copy Constructor.
- [LSystem3D](#) (std::istream &in)
Constructor: reads the [LSystem](#) from an input stream.
- virtual [~LSystem3D](#) ()
Destructor.
- [LSystem3D](#) & [operator=](#) ([LSystem3D](#) const &system)
Assignment operator.

Friends

- std::istream & [operator>>](#) (std::istream &in, [LSystem3D](#) &system)
Reads an [LSystem3D](#) from an output stream.

Additional Inherited Members

5.3.1 Detailed Description

This class represents a 3D-LSystem.

5.3.2 Constructor & Destructor Documentation

5.3.2.1 LParser::LSystem3D::LSystem3D (LParser::LSystem3D const & system)

Copy Constructor.

Parameters

<i>system</i>	The L-System to be assigned to this object
---------------	--

5.3.2.2 LParser::LSystem3D::LSystem3D (std::istream & in)

Constructor: reads the [LSystem](#) from an input stream.

Parameters

<i>in</i>	The input stream from which the LSystem is to be read
-----------	---

5.3.3 Member Function Documentation

5.3.3.1 LParser::LSystem3D & LParser::LSystem3D::operator= (LParser::LSystem3D const & system)

Assignment operator.

Parameters

<i>system</i>	The L-System to be assigned to this object
---------------	--

5.3.4 Friends And Related Function Documentation

5.3.4.1 `std::istream& operator>> (std::istream & in, LSystem3D & system) [friend]`

Reads an [LSystem3D](#) from an output stream.

Parameters

<i>in</i>	The input stream to read the LSystem2D from
<i>system</i>	The L-System object in which the parsed LSystem is to be stored

Returns

The input stream from which the L-System was read

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

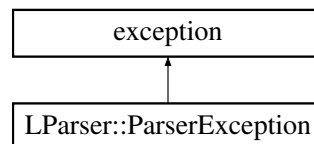
- `lparser.h`
- `lparser.cc`

5.4 LParser::ParserException Class Reference

The exception thrown when an invalid file is read.

```
#include <lparser.h>
```

Inheritance diagram for LParser::ParserException:



Public Member Functions

- [ParserException](#) (std::string const &msg, unsigned int line, unsigned int pos)
Constructor.
- [ParserException](#) (const [ParserException](#) &original)
Copy Constructor.
- virtual [~ParserException](#) () throw ()
Destructor.
- [ParserException](#) & [operator=](#) (const [ParserException](#) &original)
Assignment operator.
- virtual const char * [what](#) () const throw ()
Returns a description of the error hat occurred.

5.4.1 Detailed Description

The exception thrown when an invalid file is read.

5.4.2 Constructor & Destructor Documentation

5.4.2.1 LParser::ParserException::ParserException (std::string const & *msg*, unsigned int *line*, unsigned int *pos*)

Constructor.

Parameters

<i>msg</i>	String explaining what went wrong
<i>line</i>	The line in the file at which the parser failed
<i>pos</i>	The position on the line at which the parser failed

5.4.2.2 LParser::ParserException::ParserException (const ParserException & *original*)

Copy Constructor.

Parameters

<i>original</i>	The exception to be copied
-----------------	----------------------------

5.4.3 Member Function Documentation

5.4.3.1 LParser::ParserException & LParser::ParserException::operator= (const ParserException & *original*)

Assignment operator.

Parameters

<i>original</i>	The original exception to be assigned to this one
-----------------	---

5.4.3.2 const char * LParser::ParserException::what () const throw) [virtual]

Returns a description of the error hat occurred.

Returns

A description of the error hat occurred.

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

- lparser.h
- lparser.cc

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