

SimpleGraph

Generated by Doxygen 1.8.13

Contents

1	Hierarchical Index	1
1.1	Class Hierarchy	1
2	Class Index	3
2.1	Class List	3
3	File Index	5
3.1	File List	5
4	Class Documentation	7
4.1	BinaryRelation< E1, E2 > Class Template Reference	7
4.1.1	Constructor & Destructor Documentation	8
4.1.1.1	BinaryRelation() [1/3]	8
4.1.1.2	BinaryRelation() [2/3]	8
4.1.1.3	BinaryRelation() [3/3]	8
4.1.1.4	~BinaryRelation()	8
4.1.2	Member Function Documentation	8
4.1.2.1	add()	8
4.1.2.2	check_and_erase()	9
4.1.2.3	get_input_set()	9
4.1.2.4	get_pair_set()	9
4.1.2.5	get_target_set()	9
4.1.2.6	operator==()	9
4.1.2.7	product()	9
4.1.2.8	remove()	10

4.1.2.9	<code>remove_from_pretarget_set()</code>	10
4.1.2.10	<code>remove_from_target_set()</code>	10
4.1.2.11	<code>remove_pair()</code>	10
4.1.2.12	<code>set_input_set()</code>	10
4.1.2.13	<code>set_pair_set()</code>	10
4.1.2.14	<code>set_target_set()</code>	11
4.1.2.15	<code>transposition()</code>	11
4.2	<code>DefaultDirectedGraph< V ></code> Class Template Reference	11
4.2.1	Member Data Documentation	11
4.2.1.1	<code>relation</code>	11
4.2.1.2	<code>vertices</code>	12
4.3	<code>DirectedGraph< V ></code> Class Template Reference	12
4.4	<code>Graph< V ></code> Class Template Reference	12
4.4.1	Member Function Documentation	13
4.4.1.1	<code>add_edge()</code> [1/2]	13
4.4.1.2	<code>add_edge()</code> [2/2]	13
4.4.1.3	<code>add_vertex()</code>	13
4.4.1.4	<code>contains_edge()</code> [1/2]	14
4.4.1.5	<code>contains_edge()</code> [2/2]	14
4.4.1.6	<code>contains_vertex()</code>	14
4.4.1.7	<code>get_edge()</code>	14
4.4.1.8	<code>get_number_of_edges()</code>	14
4.4.1.9	<code>get_number_of_vertices()</code>	14
4.4.1.10	<code>get_vertices()</code>	15
4.4.1.11	<code>remove_edge()</code> [1/2]	15
4.4.1.12	<code>remove_edge()</code> [2/2]	15
4.4.1.13	<code>remove_vertex()</code>	15
4.4.1.14	<code>set_number_of_edges()</code>	15
4.4.1.15	<code>set_number_of_vertices()</code>	15
4.5	<code>HeterogeneRelation< E1, E2 ></code> Class Template Reference	16

4.5.1	Constructor & Destructor Documentation	16
4.5.1.1	HeterogeneRelation()	16
4.5.2	Member Function Documentation	16
4.5.2.1	get_allrelation()	16
4.5.2.2	isLeftTotal()	17
4.5.2.3	isRightTotal()	17
4.5.2.4	operator==(())	17
4.5.3	Member Data Documentation	17
4.5.3.1	isLeftUnique	17
4.5.3.2	isRightUnique	17
4.6	HomogeneRelation< E > Class Template Reference	17
4.6.1	Member Function Documentation	18
4.6.1.1	getReflexiveHull()	18
4.6.1.2	getTransitiveHull()	18
4.6.1.3	isReflexive()	18
4.6.1.4	isSymmetric()	18
4.6.1.5	isTransitive()	18
4.7	Pair< E1, E2 > Class Template Reference	19
4.7.1	Constructor & Destructor Documentation	19
4.7.1.1	Pair() [1/2]	19
4.7.1.2	Pair() [2/2]	19
4.7.2	Member Function Documentation	19
4.7.2.1	getFirst()	19
4.7.2.2	getSecond()	20
4.7.2.3	operator<=()	20
4.7.2.4	operator>=()	20
4.7.2.5	setFirst()	20
4.7.2.6	setSecond()	20
4.7.2.7	toString()	20
4.7.2.8	transpose()	21
4.8	UndirectedGraph< V > Class Template Reference	21
4.8.1	Member Function Documentation	21
4.8.1.1	degree_Of()	21
4.8.1.2	get_neighbours()	21
4.8.1.3	neighbour_edges_of()	22
4.9	WeightedGraph< V, W > Class Template Reference	22
4.9.1	Member Function Documentation	22
4.9.1.1	add_edge() [1/2]	22
4.9.1.2	add_edge() [2/2]	22
4.9.1.3	get_edge_weight()	23
4.9.1.4	set_edge_weight()	23

5 File Documentation	25
5.1 src/graph/include/directed_graph.h File Reference	25
5.1.1 Macro Definition Documentation	25
5.1.1.1 DIR_GRAPH_N	25
5.2 src/graph/include/graph.h File Reference	25
5.3 src/graph/include/undirected_graph.h File Reference	26
5.4 src/graph/include/weighted_graph.h File Reference	26
5.5 src/graph/src/default_directed_graph.cpp File Reference	26
5.6 src/relation/include/binary_relation.h File Reference	26
5.6.1 Detailed Description	26
5.7 src/relation/include/heterogene_relation.h File Reference	27
5.7.1 Macro Definition Documentation	27
5.7.1.1 HET_REL_N	27
5.8 src/relation/include/homogene_relation.h File Reference	27
5.8.1 Macro Definition Documentation	28
5.8.1.1 HOM_REL_N	28
5.9 src/relation/include/pair.h File Reference	28
5.10 src/relation/src/main.cpp File Reference	28
5.10.1 Function Documentation	28
5.10.1.1 main()	28
Index	29

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

BinaryRelation< E1, E2 >	7
HeterogeneRelation< E1, E2 >	16
BinaryRelation< E, E >	7
HeterogeneRelation< E, E >	16
HomogeneRelation< E >	17
BinaryRelation< V, V >	7
Graph< V >	12
DirectedGraph< V >	12
DefaultDirectedGraph< V >	11
UndirectedGraph< V >	21
WeightedGraph< V, W >	22
Pair< E1, E2 >	19

Chapter 2

Class Index

2.1 Class List

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

BinaryRelation< E1, E2 >	7
DefaultDirectedGraph< V >	11
DirectedGraph< V >	12
Graph< V >	12
HeterogeneRelation< E1, E2 >	16
HomogeneRelation< E >	17
Pair< E1, E2 >	19
UndirectedGraph< V >	21
WeightedGraph< V, W >	22

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

src/graph/include/directed_graph.h	25
src/graph/include/graph.h	25
src/graph/include/undirected_graph.h	26
src/graph/include/weighted_graph.h	26
src/graph/src/default_directed_graph.cpp	26
src/relation/include/binary_relation.h	26
src/relation/include/heterogene_relation.h	27
src/relation/include/homogene_relation.h	27
src/relation/include/pair.h	28
src/relation/src/main.cpp	28

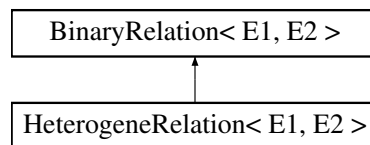
Chapter 4

Class Documentation

4.1 BinaryRelation< E1, E2 > Class Template Reference

```
#include <binary_relation.h>
```

Inheritance diagram for BinaryRelation< E1, E2 >:



Public Member Functions

- [BinaryRelation](#) ()
- [BinaryRelation](#) (const [BinaryRelation](#)< E1, E2 > &binrel)
- [BinaryRelation](#) (const E1 &inputset, const E2 &targetset)
- [~BinaryRelation](#) ()
- bool [add](#) (E1 first, E2 second)
- bool [remove](#) (E1 first, E2 second)
- bool [remove_pair](#) (E1 first, E2 second)
- bool [remove_from_pretarget_set](#) (E1 first)
- bool [remove_from_target_set](#) (E2 second)
- template<typename T >
 bool [check_and_erase](#) (std::set< T > templ_set, T key)
- [BinaryRelation](#)< E2, E1 > [transposition](#) ()
- template<typename E3 >
 [BinaryRelation](#)< E1, E3 > [product](#) ([BinaryRelation](#)< E2, E3 > relation)
- std::set< E1 > [get_input_set](#) ()
- std::set< E2 > [get_target_set](#) ()
- std::set< [Pair](#)< E1, E2 > > [get_pair_set](#) ()
- void [set_input_set](#) (const std::set< E1 > &input)
- void [set_target_set](#) (const std::set< E2 > &target)
- void [set_pair_set](#) (const std::set< [Pair](#)< E1, E2 > > &pairs)
- bool [operator==](#) (const [BinaryRelation](#)< E1, E2 > &comp_rel)

4.1.1 Constructor & Destructor Documentation

4.1.1.1 BinaryRelation() [1/3]

```
template<typename E1, typename E2>
BinaryRelation< E1, E2 >::BinaryRelation ( ) [inline]
```

4.1.1.2 BinaryRelation() [2/3]

```
template<typename E1, typename E2>
BinaryRelation< E1, E2 >::BinaryRelation (
    const BinaryRelation< E1, E2 > & binrel ) [inline]
```

4.1.1.3 BinaryRelation() [3/3]

```
template<typename E1, typename E2>
BinaryRelation< E1, E2 >::BinaryRelation (
    const E1 & inputset,
    const E2 & targetset ) [inline]
```

4.1.1.4 ~BinaryRelation()

```
template<typename E1, typename E2>
BinaryRelation< E1, E2 >::~~BinaryRelation ( ) [inline]
```

4.1.2 Member Function Documentation

4.1.2.1 add()

```
template<typename E1, typename E2>
bool BinaryRelation< E1, E2 >::add (
    E1 first,
    E2 second ) [inline]
```

4.1.2.2 check_and_erase()

```
template<typename E1, typename E2>
template<typename T >
bool BinaryRelation< E1, E2 >::check_and_erase (
    std::set< T > templ_set,
    T key ) [inline]
```

4.1.2.3 get_input_set()

```
template<typename E1, typename E2>
std::set<E1> BinaryRelation< E1, E2 >::get_input_set ( ) [inline]
```

4.1.2.4 get_pair_set()

```
template<typename E1, typename E2>
std::set<Pair<E1, E2> > BinaryRelation< E1, E2 >::get_pair_set ( ) [inline]
```

4.1.2.5 get_target_set()

```
template<typename E1, typename E2>
std::set<E2> BinaryRelation< E1, E2 >::get_target_set ( ) [inline]
```

4.1.2.6 operator==()

```
template<typename E1, typename E2>
bool BinaryRelation< E1, E2 >::operator== (
    const BinaryRelation< E1, E2 > & comp_rel ) [inline]
```

4.1.2.7 product()

```
template<typename E1, typename E2>
template<typename E3 >
BinaryRelation<E1, E3> BinaryRelation< E1, E2 >::product (
    BinaryRelation< E2, E3 > relation ) [inline]
```

4.1.2.8 remove()

```
template<typename E1, typename E2>
bool BinaryRelation< E1, E2 >::remove (
    E1 first,
    E2 second ) [inline]
```

4.1.2.9 remove_from_pretarget_set()

```
template<typename E1, typename E2>
bool BinaryRelation< E1, E2 >::remove_from_pretarget_set (
    E1 first ) [inline]
```

4.1.2.10 remove_from_target_set()

```
template<typename E1, typename E2>
bool BinaryRelation< E1, E2 >::remove_from_target_set (
    E2 second ) [inline]
```

4.1.2.11 remove_pair()

```
template<typename E1, typename E2>
bool BinaryRelation< E1, E2 >::remove_pair (
    E1 first,
    E2 second ) [inline]
```

4.1.2.12 set_input_set()

```
template<typename E1, typename E2>
void BinaryRelation< E1, E2 >::set_input_set (
    const std::set< E1 > & input ) [inline]
```

4.1.2.13 set_pair_set()

```
template<typename E1, typename E2>
void BinaryRelation< E1, E2 >::set_pair_set (
    const std::set< Pair< E1, E2 > > & pairs ) [inline]
```


4.1.2.14 set_target_set()

```
template<typename E1, typename E2>
void BinaryRelation< E1, E2 >::set_target_set (
    const std::set< E2 > & target ) [inline]
```

4.1.2.15 transposition()

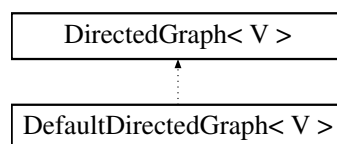
```
template<typename E1, typename E2>
BinaryRelation<E2, E1> BinaryRelation< E1, E2 >::transposition ( ) [inline]
```

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

- [src/relation/include/binary_relation.h](#)

4.2 DefaultDirectedGraph< V > Class Template Reference

Inheritance diagram for DefaultDirectedGraph< V >:



Protected Attributes

- `std::set< V >` [vertices](#)
- [BinaryRelation< V, V >](#) [relation](#)

4.2.1 Member Data Documentation

4.2.1.1 relation

```
template<typename V >
BinaryRelation<V, V> DefaultDirectedGraph< V >::relation [protected]
```

4.2.1.2 vertices

```
template<typename V >
std::set<V> DefaultDirectedGraph< V >::vertices [protected]
```

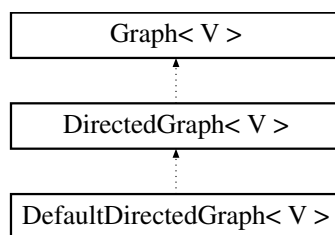
The documentation for this class was generated from the following file:

- [src/graph/src/default_directed_graph.cpp](#)

4.3 DirectedGraph< V > Class Template Reference

```
#include <directed_graph.h>
```

Inheritance diagram for DirectedGraph< V >:



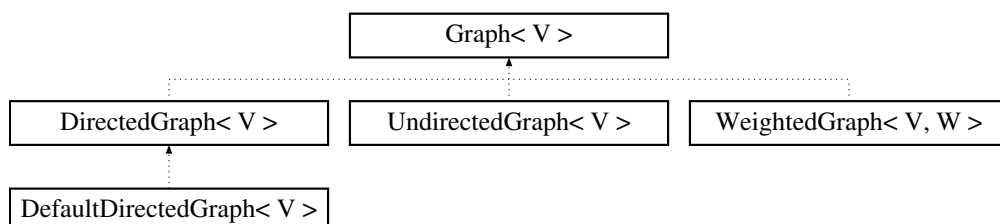
The documentation for this class was generated from the following file:

- [src/graph/include/directed_graph.h](#)

4.4 Graph< V > Class Template Reference

```
#include <graph.h>
```

Inheritance diagram for Graph< V >:



Public Member Functions

- virtual bool [add_edge](#) (V source, V target)
- virtual bool [add_edge](#) (Pair< V, V > pair)
- virtual bool [add_vertex](#) (V vertex)
- virtual bool [contains_edge](#) (Pair< V, V > edge)
- virtual bool [contains_edge](#) (V source, V target)
- virtual bool [contains_vertex](#) (V vertex)
- virtual std::set< Pair< V, V > > [get_edge](#) ()
- virtual std::set< Pair< V, V > > [get_vertices](#) ()
- virtual int [get_number_of_vertices](#) ()
- virtual int [get_number_of_edges](#) ()
- virtual bool [set_number_of_vertices](#) ()
- virtual bool [set_number_of_edges](#) ()
- virtual bool [remove_vertex](#) (V vertex)
- virtual bool [remove_edge](#) (std::set< Pair< V, V > >)
- virtual bool [remove_edge](#) (V source, V target)

4.4.1 Member Function Documentation

4.4.1.1 [add_edge\(\)](#) [1/2]

```
template<typename V >
virtual bool Graph< V >::add_edge (
    V source,
    V target ) [virtual]
```

4.4.1.2 [add_edge\(\)](#) [2/2]

```
template<typename V >
virtual bool Graph< V >::add_edge (
    Pair< V, V > pair ) [virtual]
```

4.4.1.3 [add_vertex\(\)](#)

```
template<typename V >
virtual bool Graph< V >::add_vertex (
    V vertex ) [virtual]
```

4.4.1.4 contains_edge() [1/2]

```
template<typename V >
virtual bool Graph< V >::contains_edge (
    Pair< V, V > edge ) [virtual]
```

4.4.1.5 contains_edge() [2/2]

```
template<typename V >
virtual bool Graph< V >::contains_edge (
    V source,
    V target ) [virtual]
```

4.4.1.6 contains_vertex()

```
template<typename V >
virtual bool Graph< V >::contains_vertex (
    V vertex ) [virtual]
```

4.4.1.7 get_edge()

```
template<typename V >
virtual std::set<Pair<V, V> > Graph< V >::get_edge ( ) [virtual]
```

4.4.1.8 get_number_of_edges()

```
template<typename V >
virtual int Graph< V >::get_number_of_edges ( ) [virtual]
```

4.4.1.9 get_number_of_vertices()

```
template<typename V >
virtual int Graph< V >::get_number_of_vertices ( ) [virtual]
```

4.4.1.10 get_vertices()

```
template<typename V >
virtual std::set<Pair<V, V> > Graph< V >::get_vertices ( ) [virtual]
```

4.4.1.11 remove_edge() [1/2]

```
template<typename V >
virtual bool Graph< V >::remove_edge (
    std::set< Pair< V, V > > ) [virtual]
```

4.4.1.12 remove_edge() [2/2]

```
template<typename V >
virtual bool Graph< V >::remove_edge (
    V source,
    V target ) [virtual]
```

4.4.1.13 remove_vertex()

```
template<typename V >
virtual bool Graph< V >::remove_vertex (
    V vertex ) [virtual]
```

4.4.1.14 set_number_of_edges()

```
template<typename V >
virtual bool Graph< V >::set_number_of_edges ( ) [virtual]
```

4.4.1.15 set_number_of_vertices()

```
template<typename V >
virtual bool Graph< V >::set_number_of_vertices ( ) [virtual]
```

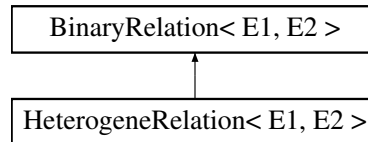
The documentation for this class was generated from the following file:

- [src/graph/include/graph.h](#)

4.5 HeterogeneRelation< E1, E2 > Class Template Reference

```
#include <heterogene_relation.h>
```

Inheritance diagram for HeterogeneRelation< E1, E2 >:



Public Member Functions

- [HeterogeneRelation](#) (const E1 &input_set, const E2 *target_set)
- bool [isLeftTotal](#) ()
- bool [isRightTotal](#) ()
- [HeterogeneRelation](#)< E1, E2 > [get_allrelation](#) (const [HeterogeneRelation](#)< E1, E2 > &relation)
- bool [operator==](#) (const [HeterogeneRelation](#)< E1, E2 > comp_rel)

Public Attributes

- bool [isRightUnique](#)
- bool [isLeftUnique](#)

4.5.1 Constructor & Destructor Documentation

4.5.1.1 HeterogeneRelation()

```
template<typename E1, typename E2>
HeterogeneRelation< E1, E2 >::HeterogeneRelation (
    const E1 & input_set,
    const E2 * target_set ) [inline]
```

4.5.2 Member Function Documentation

4.5.2.1 get_allrelation()

```
template<typename E1, typename E2>
HeterogeneRelation<E1, E2> HeterogeneRelation< E1, E2 >::get_allrelation (
    const HeterogeneRelation< E1, E2 > & relation ) [inline]
```

4.5.2.2 isLeftTotal()

```
template<typename E1, typename E2>
bool HeterogeneRelation< E1, E2 >::isLeftTotal ( ) [inline]
```

4.5.2.3 isRightTotal()

```
template<typename E1, typename E2>
bool HeterogeneRelation< E1, E2 >::isRightTotal ( ) [inline]
```

4.5.2.4 operator==()

```
template<typename E1, typename E2>
bool HeterogeneRelation< E1, E2 >::operator== (
    const HeterogeneRelation< E1, E2 > comp_rel ) [inline]
```

4.5.3 Member Data Documentation

4.5.3.1 isLeftUnique

```
template<typename E1, typename E2>
bool HeterogeneRelation< E1, E2 >::isLeftUnique
```

4.5.3.2 isRightUnique

```
template<typename E1, typename E2>
bool HeterogeneRelation< E1, E2 >::isRightUnique
```

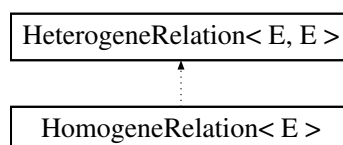
The documentation for this class was generated from the following file:

- [src/relation/include/heterogene_relation.h](#)

4.6 HomogeneRelation< E > Class Template Reference

```
#include <homogene_relation.h>
```

Inheritance diagram for HomogeneRelation< E >:



Public Member Functions

- bool [isReflexive](#) ()
- bool [isSymmetric](#) ()
- bool [isTransitive](#) ()
- [HomogeneRelation](#)< E > [getReflexiveHull](#) ()
- [HomogeneRelation](#)< E > [getTransitiveHull](#) ()

4.6.1 Member Function Documentation

4.6.1.1 [getReflexiveHull](#)()

```
template<typename E>
HomogeneRelation<E> HomogeneRelation< E >::getReflexiveHull ( )
```

4.6.1.2 [getTransitiveHull](#)()

```
template<typename E>
HomogeneRelation<E> HomogeneRelation< E >::getTransitiveHull ( )
```

4.6.1.3 [isReflexive](#)()

```
template<typename E>
bool HomogeneRelation< E >::isReflexive ( )
```

4.6.1.4 [isSymmetric](#)()

```
template<typename E>
bool HomogeneRelation< E >::isSymmetric ( )
```

4.6.1.5 [isTransitive](#)()

```
template<typename E>
bool HomogeneRelation< E >::isTransitive ( )
```

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

- [src/relation/include/homogene_relation.h](#)

4.7 `Pair< E1, E2 >` Class Template Reference

```
#include <pair.h>
```

Public Member Functions

- `Pair` (`E1 e1`, `E2 e2`)
- `Pair` (`const Pair< E1, E2 > &pair`)
- `Pair< E2, E1 > transpose` ()
- `char * toString` ()
- `E1 getFirst` ()
- `E2 getSecond` ()
- `bool setFirst` (`E1 &e1`)
- `bool setSecond` (`E2 &e2`)
- `bool operator>=` (`const Pair< E1, E2 > &pair`)
- `bool operator<=` (`const Pair< E1, E2 > &pair`)

4.7.1 Constructor & Destructor Documentation

4.7.1.1 `Pair()` [1/2]

```
template<typename E1, typename E2>
Pair< E1, E2 >::Pair (
    E1 e1,
    E2 e2 ) [inline]
```

4.7.1.2 `Pair()` [2/2]

```
template<typename E1, typename E2>
Pair< E1, E2 >::Pair (
    const Pair< E1, E2 > & pair ) [inline]
```

4.7.2 Member Function Documentation

4.7.2.1 `getFirst()`

```
template<typename E1, typename E2>
E1 Pair< E1, E2 >::getFirst ( ) [inline]
```

4.7.2.2 getSecond()

```
template<typename E1, typename E2>
E2 Pair< E1, E2 >::getSecond ( ) [inline]
```

4.7.2.3 operator<=()

```
template<typename E1, typename E2>
bool Pair< E1, E2 >::operator<= (
    const Pair< E1, E2 > & pair ) [inline]
```

4.7.2.4 operator>=()

```
template<typename E1, typename E2>
bool Pair< E1, E2 >::operator>= (
    const Pair< E1, E2 > & pair ) [inline]
```

4.7.2.5 setFirst()

```
template<typename E1, typename E2>
bool Pair< E1, E2 >::setFirst (
    E1 & e1 ) [inline]
```

4.7.2.6 setSecond()

```
template<typename E1, typename E2>
bool Pair< E1, E2 >::setSecond (
    E2 & e2 ) [inline]
```

4.7.2.7 toString()

```
template<typename E1, typename E2>
char* Pair< E1, E2 >::toString ( ) [inline]
```

4.7.2.8 transpose()

```
template<typename E1, typename E2>
Pair<E2, E1> Pair< E1, E2 >::transpose ( ) [inline]
```

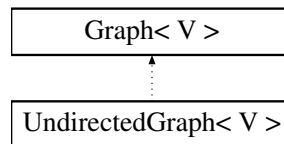
The documentation for this class was generated from the following file:

- src/relation/include/pair.h

4.8 UndirectedGraph< V > Class Template Reference

```
#include <undirected_graph.h>
```

Inheritance diagram for UndirectedGraph< V >:



Public Member Functions

- virtual int [degree_Of](#) (V vertex)
- virtual MySet< [Pair](#)< V, V > > [get_neighbours](#) (V vertex)
- virtual MySet< [Pair](#)< V, V > > [neighbour_edges_of](#) (V vertex)

4.8.1 Member Function Documentation

4.8.1.1 degree_Of()

```
template<typename V >
virtual int UndirectedGraph< V >::degree_Of (
    V vertex ) [virtual]
```

4.8.1.2 get_neighbours()

```
template<typename V >
virtual MySet<Pair<V, V> > UndirectedGraph< V >::get_neighbours (
    V vertex ) [virtual]
```

4.8.1.3 neighbour_edges_of()

```
template<typename V >
virtual MySet<Pair<V, V> > UndirectedGraph< V >::neighbour_edges_of (
    V vertex ) [virtual]
```

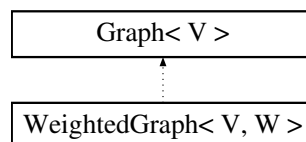
The documentation for this class was generated from the following file:

- src/graph/include/undirected_graph.h

4.9 WeightedGraph< V, W > Class Template Reference

```
#include <weighted_graph.h>
```

Inheritance diagram for WeightedGraph< V, W >:



Public Member Functions

- virtual bool [add_edge](#) (V source, V target, W weight)
- virtual bool [add_edge](#) (std::set< [Pair](#)< V, V >, W weight)
- virtual bool [set_edge_weight](#) (std::set< [Pair](#)< V, V >, W weight)
- virtual W [get_edge_weight](#) (std::set< [Pair](#)< V, V >)

4.9.1 Member Function Documentation

4.9.1.1 add_edge() [1/2]

```
template<typename V , typename W >
virtual bool WeightedGraph< V, W >::add_edge (
    V source,
    V target,
    W weight ) [virtual]
```

4.9.1.2 add_edge() [2/2]

```
template<typename V , typename W >
virtual bool WeightedGraph< V, W >::add_edge ( ) [virtual]
```

4.9.1.3 get_edge_weight()

```
template<typename V , typename W >  
virtual W WeightedGraph< V, W >::get_edge_weight ( ) [virtual]
```

4.9.1.4 set_edge_weight()

```
template<typename V , typename W >  
virtual bool WeightedGraph< V, W >::set_edge_weight ( ) [virtual]
```

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

- src/graph/include/[weighted_graph.h](#)

Chapter 5

File Documentation

5.1 src/graph/include/directed_graph.h File Reference

```
#include "graph.h"  
#include <set>
```

Classes

- class [DirectedGraph< V >](#)

Macros

- `#define` [DIR_GRAPH_N](#)

5.1.1 Macro Definition Documentation

5.1.1.1 DIR_GRAPH_N

```
#define DIR_GRAPH_N
```

5.2 src/graph/include/graph.h File Reference

```
#include "pair.h"  
#include <set>
```

Classes

- class [Graph< V >](#)

5.3 src/graph/include/undirected_graph.h File Reference

```
#include "graph.h"
```

Classes

- class [UndirectedGraph< V >](#)

5.4 src/graph/include/weighted_graph.h File Reference

```
#include "graph.h"  
#include <set>
```

Classes

- class [WeightedGraph< V, W >](#)

5.5 src/graph/src/default_directed_graph.cpp File Reference

```
#include "directed_graph.h"  
#include "binary_relation.h"  
#include <set>
```

Classes

- class [DefaultDirectedGraph< V >](#)

5.6 src/relation/include/binary_relation.h File Reference

```
#include <set>  
#include <stdio.h>  
#include "pair.h"
```

Classes

- class [BinaryRelation< E1, E2 >](#)

5.6.1 Detailed Description

template class for a binary relation

Parameters

<i>pair_set</i>	A set of edges/ pairs for mapping a relation between two component
<i>input_set</i>	The input set of type <E1>, which contains all possible elements form that set
<i>target_set</i>	The target set of type <E1>, which contains all possible elements from that set

5.7 src/relation/include/heterogene_relation.h File Reference

```
#include "binary_relation.h"
#include <set>
```

Classes

- class [HeterogeneRelation< E1, E2 >](#)

Macros

- #define [HET_REL_N](#)

5.7.1 Macro Definition Documentation

5.7.1.1 HET_REL_N

```
#define HET_REL_N
```

5.8 src/relation/include/homogene_relation.h File Reference

```
#include <set>
#include "heterogene_relation.h"
```

Classes

- class [HomogeneRelation< E >](#)

Macros

- #define [HOM_REL_N](#)

5.8.1 Macro Definition Documentation

5.8.1.1 HOM_REL_N

```
#define HOM_REL_N
```

5.9 src/relation/include/pair.h File Reference

```
#include <iostream>
```

Classes

- class [Pair< E1, E2 >](#)

5.10 src/relation/src/main.cpp File Reference

```
#include "pair.h"  
#include "binary_relation.h"  
#include "heterogene_relation.h"  
#include "homogene_relation.h"
```

Functions

- int [main](#) ()

5.10.1 Function Documentation

5.10.1.1 main()

```
int main ( )
```

Index

- ~BinaryRelation
 - BinaryRelation, 8
- add
 - BinaryRelation, 8
- add_edge
 - Graph, 13
 - WeightedGraph, 22
- add_vertex
 - Graph, 13
- BinaryRelation
 - ~BinaryRelation, 8
 - add, 8
 - BinaryRelation, 8
 - check_and_erase, 8
 - get_input_set, 9
 - get_pair_set, 9
 - get_target_set, 9
 - operator==, 9
 - product, 9
 - remove, 9
 - remove_from_pretarget_set, 10
 - remove_from_target_set, 10
 - remove_pair, 10
 - set_input_set, 10
 - set_pair_set, 10
 - set_target_set, 10
 - transposition, 11
- BinaryRelation< E1, E2 >, 7
- check_and_erase
 - BinaryRelation, 8
- contains_edge
 - Graph, 13, 14
- contains_vertex
 - Graph, 14
- DIR_GRAPH_N
 - directed_graph.h, 25
- DefaultDirectedGraph
 - relation, 11
 - vertices, 11
- DefaultDirectedGraph< V >, 11
- degree_Of
 - UndirectedGraph, 21
- directed_graph.h
 - DIR_GRAPH_N, 25
- DirectedGraph< V >, 12
- get_allrelation
 - HeterogeneRelation, 16
- get_edge
 - Graph, 14
- get_edge_weight
 - WeightedGraph, 22
- get_input_set
 - BinaryRelation, 9
- get_neighbours
 - UndirectedGraph, 21
- get_number_of_edges
 - Graph, 14
- get_number_of_vertices
 - Graph, 14
- get_pair_set
 - BinaryRelation, 9
- get_target_set
 - BinaryRelation, 9
- get_vertices
 - Graph, 14
- getFirst
 - Pair, 19
- getReflexiveHull
 - HomogeneRelation, 18
- getSecond
 - Pair, 19
- getTransitiveHull
 - HomogeneRelation, 18
- Graph
 - add_edge, 13
 - add_vertex, 13
 - contains_edge, 13, 14
 - contains_vertex, 14
 - get_edge, 14
 - get_number_of_edges, 14
 - get_number_of_vertices, 14
 - get_vertices, 14
 - remove_edge, 15
 - remove_vertex, 15
 - set_number_of_edges, 15
 - set_number_of_vertices, 15
- Graph< V >, 12
- HET_REL_N
 - heterogene_relation.h, 27
- HOM_REL_N
 - homogene_relation.h, 28
- heterogene_relation.h
 - HET_REL_N, 27
- HeterogeneRelation
 - get_allrelation, 16

- HeterogeneRelation, 16
- isLeftTotal, 16
- isLeftUnique, 17
- isRightTotal, 17
- isRightUnique, 17
- operator==, 17
- HeterogeneRelation< E1, E2 >, 16
- homogene_relation.h
 - HOM_REL_N, 28
- HomogeneRelation
 - getReflexiveHull, 18
 - getTransitiveHull, 18
 - isReflexive, 18
 - isSymmetric, 18
 - isTransitive, 18
- HomogeneRelation< E >, 17
- isLeftTotal
 - HeterogeneRelation, 16
- isLeftUnique
 - HeterogeneRelation, 17
- isReflexive
 - HomogeneRelation, 18
- isRightTotal
 - HeterogeneRelation, 17
- isRightUnique
 - HeterogeneRelation, 17
- isSymmetric
 - HomogeneRelation, 18
- isTransitive
 - HomogeneRelation, 18
- main
 - main.cpp, 28
- main.cpp
 - main, 28
- neighbour_edges_of
 - UndirectedGraph, 21
- operator<=
 - Pair, 20
- operator>=
 - Pair, 20
- operator==
 - BinaryRelation, 9
 - HeterogeneRelation, 17
- Pair
 - getFirst, 19
 - getSecond, 19
 - operator<=, 20
 - operator>=, 20
 - Pair, 19
 - setFirst, 20
 - setSecond, 20
 - toString, 20
 - transpose, 20
- Pair< E1, E2 >, 19
- product
 - BinaryRelation, 9
- relation
 - DefaultDirectedGraph, 11
- remove
 - BinaryRelation, 9
- remove_edge
 - Graph, 15
- remove_from_pretarget_set
 - BinaryRelation, 10
- remove_from_target_set
 - BinaryRelation, 10
- remove_pair
 - BinaryRelation, 10
- remove_vertex
 - Graph, 15
- set_edge_weight
 - WeightedGraph, 23
- set_input_set
 - BinaryRelation, 10
- set_number_of_edges
 - Graph, 15
- set_number_of_vertices
 - Graph, 15
- set_pair_set
 - BinaryRelation, 10
- set_target_set
 - BinaryRelation, 10
- setFirst
 - Pair, 20
- setSecond
 - Pair, 20
- src/graph/include/directed_graph.h, 25
- src/graph/include/graph.h, 25
- src/graph/include/undirected_graph.h, 26
- src/graph/include/weighted_graph.h, 26
- src/graph/src/default_directed_graph.cpp, 26
- src/relation/include/binary_relation.h, 26
- src/relation/include/heterogene_relation.h, 27
- src/relation/include/homogene_relation.h, 27
- src/relation/include/pair.h, 28
- src/relation/src/main.cpp, 28
- toString
 - Pair, 20
- transpose
 - Pair, 20
- transposition
 - BinaryRelation, 11
- UndirectedGraph
 - degree_Of, 21
 - get_neighbours, 21
 - neighbour_edges_of, 21
- UndirectedGraph< V >, 21
- vertices

DefaultDirectedGraph, [11](#)

WeightedGraph

add_edge, [22](#)

get_edge_weight, [22](#)

set_edge_weight, [23](#)

WeightedGraph< V, W >, [22](#)