Subject: C++11: Vector is missing copy contructor/assignment operator
Posted by steffen on Wed, 28 May 2014 08:24:32 GMT
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Hi,

OS: Ubuntu 14.04
uppsrc revision 7400
gcc version 4.8.2

It seems that from gcc-4.8, the Vector class gives a compiler error when building with the -std=c++0x flag.
According to C++11 specs, it is a valid error, since it should not implicitly make copy constructors for moveable objects.

Example:

```
CONSOLE_APP_MAIN
{
 Vector<int> v;
 Vector<int> r = v;

 VectorMap<int,String> vm;
 VectorMap<int,String> rvm = vm;
 Vector<String> rv = vm.GetValues();
}
```

Compiler gives these errors:

```
/home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp: In function 'void
ConsoleMainFn_()':
/home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:10:18: error: use of deleted function
'constexpr Upp::Vector<int>::Vector(const Upp::Vector<int>&)'
  Vector<int> r = v;
                  ^
In file included from /home/steffen/Projects/upp/uppsrc/Core/Core.h:282:0,
                 from /home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:1:
/home/steffen/Projects/upp/uppsrc/Core/Vcont.h:13:7: note: 'constexpr
Upp::Vector<int>::Vector(const Upp::Vector<int>&)' is implicitly declared as deleted because
'Upp::Vector<int>' declares a move constructor or move assignment operator
 class Vector : public MoveableAndDeepCopyOption< Vector<T> > {
       ^
/home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:13:30: error: use of deleted function
'Upp::VectorMap<int, Upp::String>::VectorMap(const Upp::VectorMap<int, Upp::String>&)'
  VectorMap<int,String> rvm = vm;
                              ^
In file included from /home/steffen/Projects/upp/uppsrc/Core/Core.h:285:0,
                 from /home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:1:
```

```
/home/steffen/Projects/upp/uppsrc/Core/Map.h:145:7: note: 'Upp::VectorMap<int,
Upp::String>::VectorMap(const Upp::VectorMap<int, Upp::String>&)' is implicitly deleted because
the default definition would be ill-formed:
 class VectorMap : public MoveableAndDeepCopyOption<VectorMap<K, T, HashFn> >,
       ^
/home/steffen/Projects/upp/uppsrc/Core/Map.h:145:7: error: use of deleted function
'Upp::AMap<int, Upp::String, Upp::Vector<Upp::String>, Upp::StdHash<int> >::AMap(const
Upp::AMap<int, Upp::String, Upp::Vector<Upp::String>, Upp::StdHash<int> >&)'
/home/steffen/Projects/upp/uppsrc/Core/Map.h:2:7: note: 'Upp::AMap<int, Upp::String,
Upp::Vector<Upp::String>, Upp::StdHash<int> >::AMap(const Upp::AMap<int, Upp::String,
Upp::Vector<Upp::String>, Upp::StdHash<int> >&)' is implicitly deleted because the default
definition would be ill-formed:
 class AMap {
       ^
/home/steffen/Projects/upp/uppsrc/Core/Map.h:2:7: error: use of deleted function
'Upp::Index<int>::Index(const Upp::Index<int>&)'
In file included from /home/steffen/Projects/upp/uppsrc/Core/Core.h:284:0,
                 from /home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:1:
/home/steffen/Projects/upp/uppsrc/Core/Index.h:210:7: note: 'Upp::Index<int>::Index(const
Upp::Index<int>&)' is implicitly declared as deleted because 'Upp::Index<int>' declares a move
constructor or move assignment operator
 class Index : MoveableAndDeepCopyOption< Index<T, HashFn > >,
       ^
In file included from /home/steffen/Projects/upp/uppsrc/Core/Core.h:285:0,
                 from /home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:1:
/home/steffen/Projects/upp/uppsrc/Core/Map.h:2:7: error: use of deleted function 'constexpr
Upp::Vector<Upp::String>::Vector(const Upp::Vector<Upp::String>&)'
 class AMap {
       ^
In file included from /home/steffen/Projects/upp/uppsrc/Core/Core.h:282:0,
                 from /home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:1:
/home/steffen/Projects/upp/uppsrc/Core/Vcont.h:13:7: note: 'constexpr
Upp::Vector<Upp::String>::Vector(const Upp::Vector<Upp::String>&)' is implicitly declared as
deleted because 'Upp::Vector<Upp::String>' declares a move constructor or move assignment
operator
 class Vector : public MoveableAndDeepCopyOption< Vector<T> > {
       ^
/home/steffen/Projects/Ultimatepp/VectorTest/VectorTest.cpp:14:35: error: use of deleted function
'constexpr Upp::Vector<Upp::String>::Vector(const Upp::Vector<Upp::String>&)'
  Vector<String> rv = vm.GetValues();
```

Subject: Re: C++11: Vector is missing copy contructor/assignment operator
Posted by mirek on Thu, 29 May 2014 05:51:31 GMT
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You must have missed "big change of pick semantics in C++ 11" topic

See current documentation.

The correct code for C++11 now is

```
#include <Core/Core.h>

using namespace Upp;

CONSOLE_APP_MAIN
{
 Vector<int> v;
 Vector<int> r = pick(v);

 VectorMap<int,String> vm;
 VectorMap<int,String> rvm = pick(vm);

 Vector<String> rv = pick(vm.GetValues());
}
```

If you have a lot of code requiring old behaviour, I might consider some compilation flag to force the old behaviour. Anyway, it took only about 2 hours to fix all of U++...

Subject: Re: C++11: Vector is missing copy contructor/assignment operator
Posted by mirek on Thu, 29 May 2014 05:56:47 GMT
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Here is the announcment:

http://www.ultimatepp.org/forums/index.php?t=msg&th=8527 &start=0&

Subject: Re: C++11: Vector is missing copy contructor/assignment operator
Posted by steffen on Mon, 02 Jun 2014 13:56:05 GMT
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Thank you very much, Mirek.

I totally missed that announcement.

For some time I had the error in a single place, but when I got it on an array too I tried to make the tests above.
And it was a bit hard for me to figure out which constructor or operator was in use in the different

places.
It took only 5 seconds to fix my two error though.
