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5

After reading this answer from ildjarn, I wrote the following example, and it looks like an unnamed temporary object has the same life time as its reference!

- How come this is possible?
- Is it specified in the C++ standard?

Asked 9 years ago Modified 9 years ago Viewed 1k times

- Which version?
- Source code:

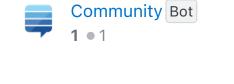
```
#include <iostream> //cout
#include <sstream> //ostringstream
int main ()
        std::ostringstream oss;
        oss << 1234;
        std::string const& str = oss.str();
        char
                    const* ptr = str.c_str();
        // Change the stream content
        oss << "_more_stuff_";</pre>
        oss.str(""); //reset
        oss << "Beginning";</pre>
        std::cout << oss.str() <<'\n';
        // Fill the call stack
        // ... create many local variables, call functions...
        // Change again the stream content
        oss << "Again";
        oss.str(""); //reset
        oss << "Next should be '1234': ";
        std::cout << oss.str() <<'\n';
        // Check if the ptr is still unchanged
        std::cout << ptr << std::endl;</pre>
```

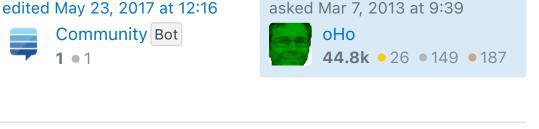
**Execution:** 

```
> q++ --version
g++ (GCC) 4.1.2 20080704 (Red Hat 4.1.2-54)
Copyright (C) 2006 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
> g++ main.cpp -03
> ./a.out
Beginning
Next should be '1234':
1234
```

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c++ reference temporary object-lifetime





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your C++ book. - Lightness Races in Orbit Mar 7, 2013 at 9:41 You should find your answer if you just try searching the web for the phrase you used: temporary

object has the same life time as its reference - Jonathan Wakely Mar 7, 2013 at 9:48

The fact that const references extend the lifetime of temporaries should be covered fairly on in

possible duplicate of <u>Lifetime of temporaries</u> / look what I found – <u>Lightness Races in Orbit Mar 7</u>, 2013 at 9:54 🧪

@olibre: Yeah, you're right. I must have been drunk. – Lightness Races in Orbit Mar 7, 2013 at 15:27 

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@olibre: You cannot. - Lightness Races in Orbit Mar 10, 2013 at 22:59

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3 Answers

10

non-const Ivalue references.

How come this is possible?

references extend the lifetime of temporaries: [C++11: 12.2/5]: [..] The temporary to which the reference is bound or the

Because the standard says so, because it's deemed useful. rvalue references and const Ivalue

persists for the lifetime of the reference, except [..] and exhaustive wording in [C++11: 8.5.3/5] requires that we shall not bind temporaries to

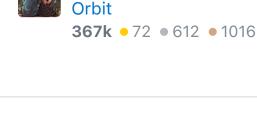
temporary that is the complete object of a subobject to which the reference is bound

edited Mar 7, 2013 at 9:52

Yes. All of them.

Is it specified in the C++ standard? Which version?

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answered Mar 7, 2013 at 9:42

Lightness Races in

# A temporary bound to a const reference increases the lifetime of the temporary till the lifetime

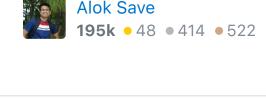
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of the constant reference. **Good Read:** 

GotW #88: A Candidate For the "Most Important const"

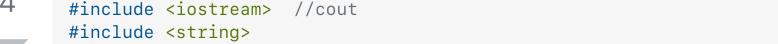
Yes it is specified in the C++ standard from the time references were introduced.

So if you are wondering if this is C++11 feature, no it is not. It already existed in C++03. Share Edit Follow Flag answered Mar 7, 2013 at 9:42



<u>Lightness Races in Orbit</u> is right. And I think this example would be more concise.

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int main () using namespace std; int a = 123;int b = 123;int const  $& a_b = a + b;$ cout<<"hello world!"<<endl;</pre> cout<<a\_b<<endl;</pre>

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Community Bot 1 • 1

edited May 23, 2017 at 12:33

Pony279 **353** • 1 • 5 • 12

answered Mar 7, 2013 at 10:30

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