

Re: Same code and different result, Why?

Source: <http://www.tech-archive.net/Archive/VC/microsoft.public.vc.language/2008-11/msg00192.html>

- *From:* "Bo Persson" <bop@xxxxxx>
 - *Date:* Sat, 8 Nov 2008 11:23:29 +0100
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Tommy wrote:

Alex Blekhman wrote:

and best from what I tell, its a MS Compiler issue only – excused with the documented sequence point idea.

No, it is undefined for all other compilers, as well. The notion of sequence point is common for all C/C++ compilers. However, the exact place where sequence point occurs may vary from vendor to vendor.

I think that B. Stroustrup answerd to you claim better than I could:

"Why are some things left undefined in C++?"
http://www.research.att.com/~bs/bs_faq2.html#undefined

Alex, you missed the point. I'll try it this way.

In every technology, protocol, what have you, when they is a lack of consensus, in principle, you use the best practice. This is part for the course for the technology you are using right now, the compiler, including the news groups protocol NNTP (RFC 977) you are using, as well as, and especially in Email (RFC 5321) technology.

In all cases, it is not that behavior is not defined, it is indeterministic, there could be many behaviors but generally well defined set of behavior. So in principle, there is lack of consensus for what is the correct behavior – which one is deemed "more" correct.

This isn't a software only problem. What is "correct" behavior is sometimes decided by the underlying hardware, and they are different.

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On some hardware, the code sequence

```
y = *x++;
```

might be a single machine instruction, if x is stored in a register. Now, the compiler writers for such a machine would be really upset if they could not use that instruction, just because you sometimes want to write

```
x = *x++;
```

instead. Making this well defined, might make everything else run slower, on some hardware. Good or bad?

One concrete example of this is Java requiring IEEE floating point. Regular and well defined. However, IBM mainframes do not have that, so they require a \$100k hardware extension to run Java properly.

<http://www-03.ibm.com/systems/z/advantages/zaap/index.html>

C++ doesn't specify its floating point format, and therefore works without any extra hardware.

Bo Persson

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