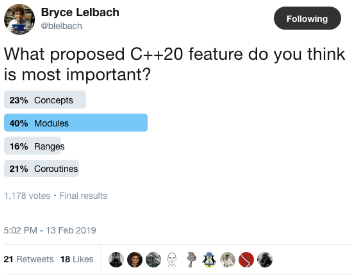
C++ Club Meeting Notes

Gleb Dolgich

2019-02-21

Bryce Lelbach’s Kona Twitter Poll



Bryce Lelbach
@blelbach

What proposed C++20 feature do you think is most important?

- **23%** Concepts
- **40%** Modules
- **16%** Ranges
- **21%** Coroutines

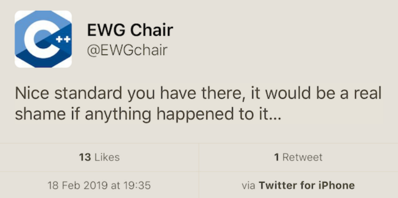
1,178 votes • Final results

5:02 PM - 13 Feb 2019

21 Retweets **18** Likes

https://www.reddit.com/r/cpp/comments/aq8rxf/bryce_lelbach_on_twitter_what_proposed_c20/

Twitter



EWG Chair
@EWGchair

Nice standard you have there, it would be a real shame if anything happened to it...

13 Likes

1 Retweet

18 Feb 2019 at 19:35

via **Twitter for iPhone**

Kona Trip Reports

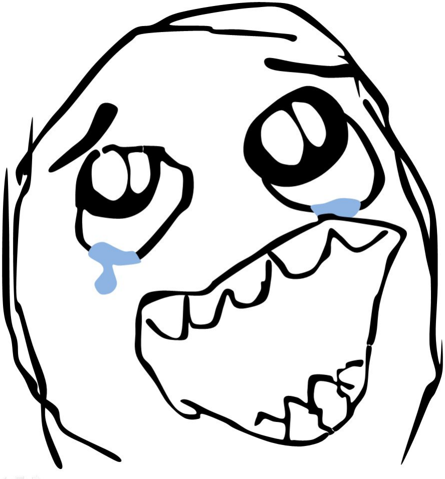
- Modules! Coroutines! Contracts! Ranges! Constexpr! Spaceships! Calendars! Time zones!
- Bryce Lelbach https://www.reddit.com/r/cpp/comments/au0c4x/201902_kona_iso_c_committee_trip_report_c20/
  - The reports of modules being dead on arrival have been greatly exaggerated. https://www.reddit.com/r/cpp/comments/au0c4x/201902_kona_iso_c_committee_trip_report_c20/eh4stfg/
  - More Reddit https://www.reddit.com/r/programming/comments/au1ie3/201902_kona_iso_c_committee_trip_report_c20/
  - Hacker News https://news.ycombinator.com/item?id=19235702
- Herb Sutter https://herbsutter.com/2019/02/23/trip-report-winter-iso-c-standards-meeting-kona/
  - Reddit https://www.reddit.com/r/cpp/comments/au1skl/herbs_kona_trip_report_winter_iso_c_standards/

    At our next meeting in July, we expect to formally adopt a few additional features that were design-approved at this meeting but didn't complete full wording specification review this week <...> (formatting, `flat_map` etc.)

C++20

Bryce Lelbach:

> *TL;DR: C++20 may well be as big a release as C++11.*



Eigen + MTS + Google Ceres Solver = SEGFAULT

- Eigen http://eigen.tuxfamily.org/index.php?title=Main_Page
- Ceres Solver http://ceres-solver.org/
- Memory managers:
  - MTS http://www.desy.de/user/projects/C++/products/mts.html
    - for every 10000 allocations 13 to 17 were unaligned
  - TCMalloc (Google) http://goog-perftools.sourceforge.net/doc/tcmalloc.html
  - Jemalloc (FreeBSD, Facebook) http://jemalloc.net/

```
bool aligned = ((unsigned long)p % 16) == 0;
```

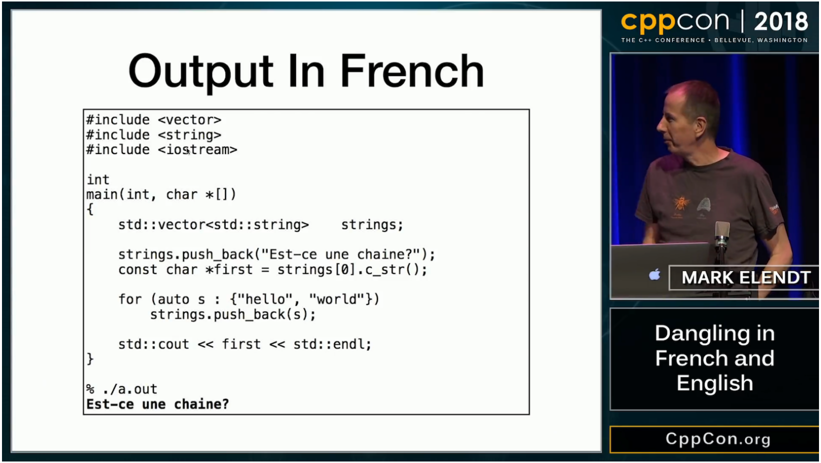
Cpp On Sea 2019 Trip Report by Arne Mertz

https://arne-mertz.de/2019/02/cpp-on-sea-2019-trip-report/

> *C++ On Sea is definitely the best conference I have ever been to.*
>
> *The opener was titled "Hello, World", there was a "main()" plenary hall and session rooms titled "const west", "east const", and "unsigned". The latter was the smallest of the session rooms and had an overflow problem a few times, but luckily that did not lead to undefined behavior, because C++ conference attendees seem to be very nice people in general.*

CppCon 2018 - Mark Elendt - Dangling in French and English

https://youtu.be/jieYLTcmTS0



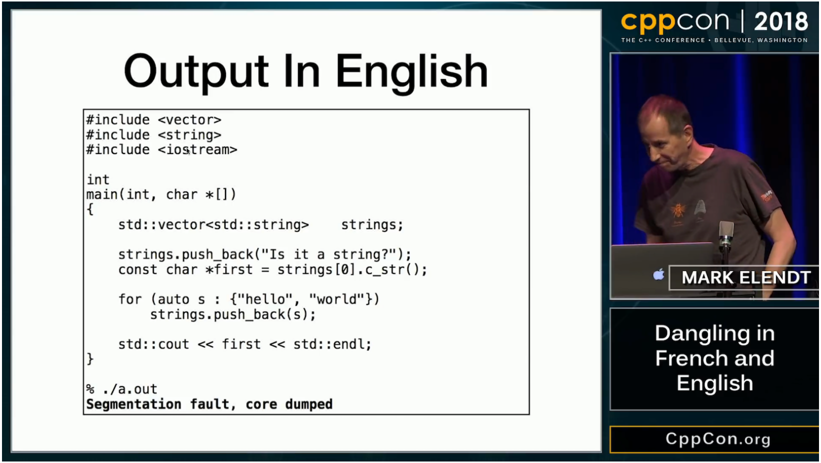
Output In French

```
#include <vector>
#include <string>
#include <iostream>

int
main(int, char *[])
{
    std::vector<std::string>    strings;

    strings.push_back("Est-ce une chaine?");
    const char *first = strings[0].c_str();

    for (auto s : {"hello", "world"})
        strings.push_back(s);

    std::cout << first << std::endl;
}

% ./a.out
Est-ce une chaine?
```

cppcon | 2018
THE C++ CONFERENCE • BELLEVUE, WASHINGTON
MARK ELENDT
Dangling in French and English
CppCon.org

CppCon 2018 - Mark Elendt - Dangling in French and English

https://youtu.be/jieYLTcmTS0



Output In English

```
#include <vector>
#include <string>
#include <iostream>

int
main(int, char *[])
{
    std::vector<std::string>    strings;

    strings.push_back("Is it a string?");
    const char *first = strings[0].c_str();

    for (auto s : {"hello", "world"})
        strings.push_back(s);

    std::cout << first << std::endl;
}

% ./a.out
Segmentation fault, core dumped
```

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MARK ELENDT
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CppCon.org

C++ Binary Compatibility and Pain-Free Upgrades to Visual Studio 2019

https://blogs.msdn.microsoft.com/vcblog/2019/01/31/cpp-binary-compatibility-and-pain-free-upgrades-to-visual-studio-2019/

Visual Studio 2019 Release Candidate (RC) now available

https://devblogs.microsoft.com/visualstudio/visual-studio-2019-release-candidate-rc-now-available/

Moving iterators in C++

https://cukic.co/2019/02/09/moving-iterators-in-cxx/

> *`std::move_iterator` is an iterator adaptor which behaves exactly like the underlying iterator, except that dereferencing converts the value returned by the underlying iterator into an* rvalue.
> (*https://en.cppreference.com/w/cpp/iterator/move_iterator*)

```cpp
std::vector<fs::directory_entry> results;
auto dir_items = files_in_dir(...);
results.insert(results.end(), dir_items.cbegin(), dir_items.cend());
```

Low-cost Deterministic C++ Exceptions for Embedded Systems

https://www.research.ed.ac.uk/portal/files/78829292/low_cost_deterministic_C_exceptions_for_embedded_systems.pdf

James Renwick, Tom Spink, Björn Franke (University of Edinburgh)

> *In our novel C++ exception implementation we make use of a stack-allocated object that records the necessary run-time information for throwing an exception, such as the type and size of the exception object. This state is allocated in a single place and is passed between functions via an implicit function parameter injected into functions which support exceptions. The state is initialised by `throw` expressions, and is re-used to enable re-throwing. `catch` statements use the state in order to determine whether they can handle the exception. After a call to a function which may throw exceptions, a run-time check is inserted to test whether the state containsan active exception.*

Fast_ber: ASN.1 BER serialization library

- https://github.com/Samuel-Tyler/fast_ber
- https://www.reddit.com/r/cpp/comments/anwlrs/fast_ber_asn1_ber_serialization_library_written/
- https://en.wikipedia.org/wiki/Abstract_Syntax_Notation_One

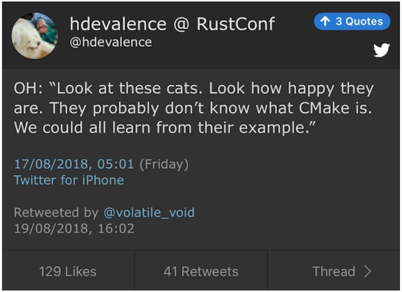
C++, it’s not you. It’s me.

- Blog post: https://c0de517e.blogspot.com/2019/02/c-its-not-you-its-me.html
  - Reddit

If you follow the twitter-verse (ok, and you happen to be in the same small circle of grumpy gamedevs that forms my bubble) you might have noticed lately a rise of rage and sarcasm against C++ and the direction it’s taking.

I don’t want to post all the relevant bits, but the crux of the issue, for the lucky among you who don’t do social media, is the growing disconnect between people woking on big, complex, performance-sensitive and often monolithic and legacy-ridden codebases that we find in game development, and the ideas of ”modernity” of the C++ standard community.

Twitter



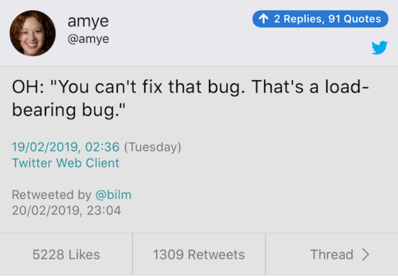
hdevalence @ RustConf
@hdevalence

OH: “Look at these cats. Look how happy they are. They probably don’t know what CMake is. We could all learn from their example.”

17/08/2018, 05:01 (Friday)
Twitter for iPhone

Retweeted by @volatile_void
19/08/2018, 16:02

Twitter



amye
@amye

2 Replies, 91 Quotes

OH: "You can't fix that bug. That's a load-bearing bug."

19/02/2019, 02:36 (Tuesday)
Twitter Web Client

Retweeted by @bilm
20/02/2019, 23:04

5228 Likes | 1309 Retweets | Thread