C++ Club UK

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CPPP19 Trip Reports

https://deque.blog/2019/06/17/trip-report-on-cppp-19-the-first-edition-of-the-first-c-french-conference/

Hello World with reflection

```
#include <iostream>
#include <experimental/meta>

namespace meta = std::experimental::meta;

namespace n {
    struct hello {};
    int world;
}

int main () {
    static constexpr auto range = meta::range(reflexpr(n));
    for...(constexpr auto member : range) {
        std::cout << meta::name_of(member) << " ";
    }
    std::cout << "\n";
}
```

Heterogeneous Lookup in Ordered Containers in C++14

https://www.bfilipek.com/2019/05/heterogeneous-lookup-cpp14.html

https://www.reddit.com/r/cpp/comments/btrfnd/heterogeneous_lookup_in_ordered_containers_c14/

Professional, zero-cost setup for C++ projects

Part 1: https://awfulcode.io/2019/04/13/professional-zero-cost-setup-for-c-projects-part-1-of-n/

Part 2: https://awfulcode.io/2019/04/26/professional-zero-cost-setup-for-c-projects-part-2-of-n/

Reddit: https://www.reddit.com/r/cpp/comments/bhqcjh/professional_zerocost_setup_for_c_projects_part_2/

Higher-order functions

Meeting C++ 2018: Björn Fahller - Higher Order Functions for ordinary developers

> *A **higher-order function** is a function that takes other functions as arguments or returns a function as result.*

Take-away messages:

- Avoid using `std::function` as return type, use `auto` instead
- Capturing by reference when returning a lambda is dangerous
- Compose functions and give names to compositions
- Functional extensions to `std::optional` and `std::expected` remove the need for many conditionals

https://github.com/rollbear/lift

Boost.HOF in Boost 1.68+ (Docs)

https://youtu.be/lY8tHh2LSX4

std::function const correctess bug

```
1  struct Callable {
2      void operator()(){count++;}
3      void operator()() const = delete;
4      int count = 0;
5  };
6
7  void f() {
8      Callable counter;
9      std::function<void(void)> f = counter;
10     f();
11     const auto cf = f;
12     cf(); // ???
13 }
```

std::function requires copyable callables

```
1 void f() {
2     std::unique_ptr<int> up;
3     auto l=[up=std::move(up)](){};
4     std::function<void(void)> f=l; // Build fails
5 }
```

ODR violation

```
1 namespace libs {
2 inline bool contains(std::string_view needle, std::string_view haystack) {
3     assert(needle.size() <= haystack.size()); // !!!
4     return haystack.find(needle) != std::string_view::npos;
5 }
6 }
```

C++ Developer Ecosystem

https://www.jetbrains.com/lp/devecosystem-2019/cpp/

https://www.reddit.com/r/cpp/comments/c21ft6/the_state_of_developer_ecosystem_2019_c/

Catch V2.9.0

https://github.com/catchorg/Catch2/releases/tag/v2.9.0

This release replaces the old benchmarking support with a new one, based on donated Nonius code.

Taskflow V2.2.0

> *Cpp-Taskflow is by far faster, more expressive, and easier for drop-in integration than existing parallel task programming libraries such as OpenMP Tasking and Intel TBB FlowGraph in handling complex parallel workloads.*

https://github.com/cpp-taskflow/cpp-taskflow/releases/tag/v2.2.0 (MIT)

Docs: https://cpp-taskflow.github.io/cpp-taskflow/index.html

SFINAE and enable_if

https://eli.thegreenplace.net/2014/sfinae-and-enable_if/

https://www.reddit.com/r/cpp/comments/c1njko/sfinae_and_enable_if_eli_benderskys_website/

Boost **out_ptr**

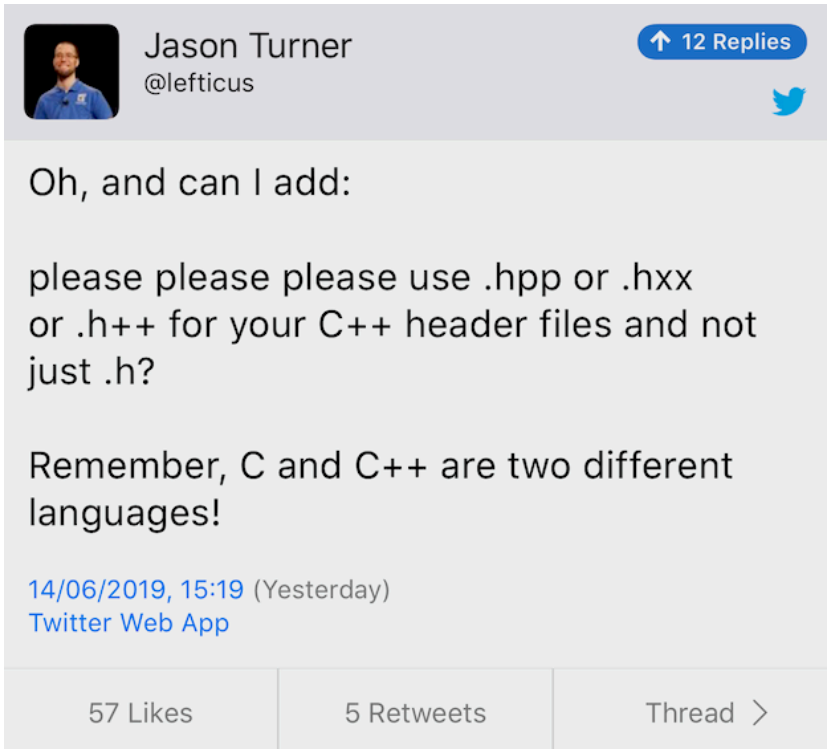
https://thephd.github.io/vendor/future_cxx/papers/d1132.html

https://github.com/ThePhD/out_ptr

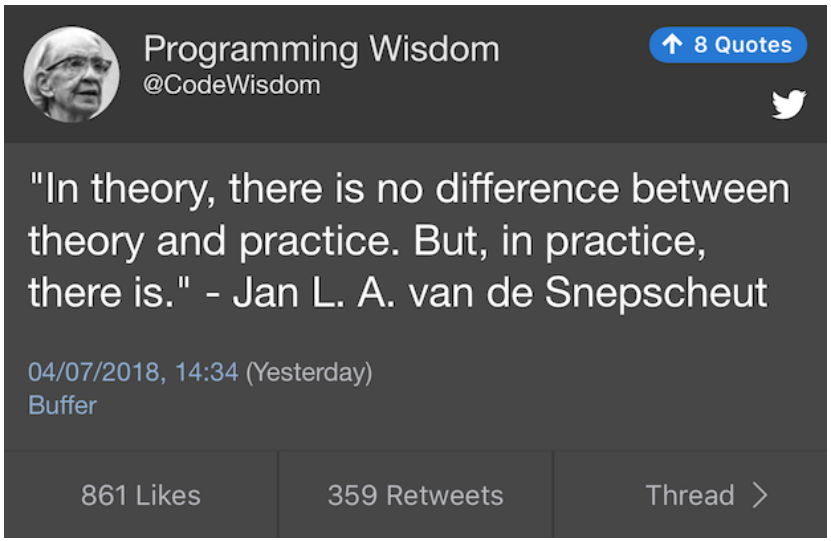
https://github.com/ThePhD/out_ptr/blob/master/docs/out_ptr.adoc

https://lists.boost.org/Archives/boost//2019/06/246353.php

Twitter


Jason Turner
@lefticus
12 Replies
Oh, and can I add:
please please please use .hpp or .hxx or .h++ for your C++ header files and not just .h?
Remember, C and C++ are two different languages!
14/06/2019, 15:19 (Yesterday)
Twitter Web App
57 Likes
5 Retweets
Thread

Quote


Programming Wisdom
@CodeWisdom
8 Quotes
"In theory, there is no difference between theory and practice. But, in practice, there is." - Jan L. A. van de Snepscheut
04/07/2018, 14:34 (Yesterday)
Buffer
861 Likes
359 Retweets
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