C++ Club UK

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Concept-based interfaces, by Gianluca Delfino

Article | Code | Godbolt | Reddit

```
1  template <typename T>
2  concept Shape = requires(const T& t)
3  {
4      { t.area() } -> float;
5  };
6
7  template <typename T>
8  struct Rectangle
9  {
10     Rectangle() { static_assert(Shape<T>); }
11     float area() const;
12     T base;
13     T height;
14 };
```

Concept-based interfaces, by Gianluca Delfino (cont.)

Alternative solution:

```
1  template <typename T>
2  concept Shape = requires(const T& t)
3  {
4      { t.area() } -> float;
5  };
6
7  template<class T>
8  struct ModelsShape
9  {
10     ModelsShape() requires(Shape<T>) = default;
11 };
12
13 struct Circle: ModelsShape<Circle>
14 {
15     float area() const;
16     float radius;
17 };
```

Intel Data Parallel C++

- FOSS Bytes
- Intel Announcement
- Reddit

Part of Intel One API Project. Based on C++14 and SYCL. Open Source. Developer Beta in 2019 Q4.

Follow-up: std::function const correctness

```
struct Callable {
    void operator()(){count++;}
    void operator()() const = delete;
    int count = 0;
};

void f()
{
    Callable counter;
    std::function<void(void)> f = counter;
    f();
    const std::function<void(void) const> cf = counter;
    //                                    ^^
    // error: implicit instantiation of undefined template
    // 'std::__1::function<void () const>'
    //
    cf(); // Should not compile
}
```

Follow-up: std::function movable callables

```
1 void f()
2 {
3     std::unique_ptr<int> up;
4     auto l=[up=std::move(up)](){};
5     std::function<void(void)> f1=l; // Error
6     std::function<void(void)> f2=std::move(l); // OK
7 }
```

C++ pre-Cologne mailing

http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/#mailing2019-06

https://www.reddit.com/r/cpp/comments/c3mup9/c_precologne_mailing/

Direction for ISO C++ (R3)

http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p0939r3.pdf

https://www.reddit.com/r/cpp/comments/c3mes0/direction_for_iso_c_r3/

Proposal: Enumerating Core Undefined Behaviour (P1705R0)

http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p1705r0.html

https://www.reddit.com/r/cpp/comments/c4548m/a_proposal_to_enumerating_core_undefined_behavior/

bad_alloc is not out-of-memory!

http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p1404r1.html

TL;DR: Throwing `std::bad_alloc` is not the same as "there is no heap space available" - in particular when dealing with custom allocators.

In support of P1485 “Better keywords for coroutines”

https://quuxplusone.github.io/blog/2019/06/26/pro-p1485/

https://stackoverflow.com/a/44244451/1424877

> *A function becomes a coroutine by having [a keyword such as `co_await`, `co_yield`, or `co_return`] in its body. So [without close inspection of every line of the body] they are indistinguishable from functions.*

http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p1485r1.html

https://www.reddit.com/r/cpp/comments/c5uu56/in_support_of_p1485_better_keywords_for_coroutines/

To boldly suggest an overall plan for C++23

http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p0592r1.html

Must have:

- Library support for coroutines
- Executors
- Networking

Good to have:

- Reflection
- Pattern matching

Other Cologne papers

- P1662R0 Adding async RAII support to coroutines
- P1678R0 Callbacks and Composition
  - https://github.com/ReactiveX/RxCpp
  - https://github.com/facebookresearch/pushmi
- P1688R0 Towards a C++ Ecosystem Technical Report
- P1711R0 What to do about contracts?
- P1717R0 Compile-time Metaprogramming in C++
- P1729R0 Text Parsing
  - https://github.com/eliaskosunen/scnlib (Apache-2.0) | Reddit

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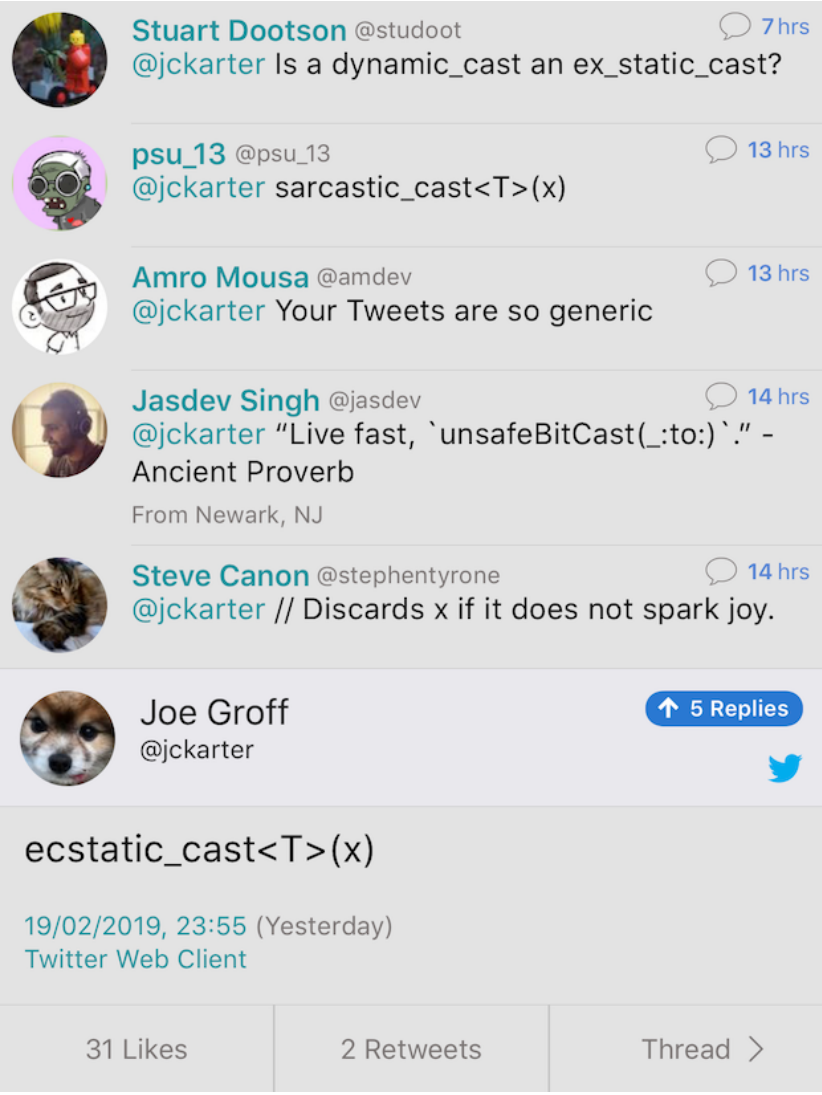
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psu_13 @psu_13
13 hrs
@jckarter sarcastic_cast<T>(x)
Amro Mousa @amdev
13 hrs
@jckarter Your Tweets are so generic
Jasdev Singh @jasdev
14 hrs
@jckarter "Live fast, `unsafeBitCast(_:to:)`." - Ancient Proverb
From Newark, NJ
Steve Canon @stephentyrone
14 hrs
@jckarter // Discards x if it does not spark joy.
Joe Groff
@jckarter
5 Replies
ecstatic_cast<T>(x)
19/02/2019, 23:55 (Yesterday)
Twitter Web Client
31 Likes
2 Retweets
Thread