

Concepts in Programming Languages

C++ lambda variable capture

Alan Mycroft

Computer Laboratory
University of Cambridge

CST Paper 7: 2021–2022 (Easter Term)

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C++ lambdas: variable capture (value or reference)

```
// LLVM use: c++ --std=c++14 to get lambda support

#include <iostream>
int main()
{   int a=0,b=0;
    // C++ use of '[' (lambda) needs to know how
    //                               free variables are bound:
    auto f = [a,&b](int x) ->int { return x+a+b;};
    a++; b+=10;
    std::cout << "f(42)=" << f(42) << std::endl;
    // gives "f(42)=52" -- think why...
    return 0;
}
```

Notes:

- ▶ `auto f = [](int x) ->int { return x+a+b;};` gives “error: variable 'a' cannot be implicitly captured in a lambda with no capture-default specified.”
- ▶ The type of `f` is a C++ ‘functor’, but that’s another story.