

C++ Club UK

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C++ Parallel Programming with Threading Building Blocks

► PDF

► Epub

https://www.reddit.com/r/cpp/comments/cov2xw/pro_tbb_c_parallel_programming_with_threading/

Stop using out arguments

Sean Parent: <https://stlab.cc/tips/stop-using-out-arguments.html>

- ▶ P1132R6
- ▶ Example
- ▶ Code: https://github.com/ThePhD/out_ptr (Boost)

AnyDuck : A Value Type Erased Type

Steve Downey:

<https://www.sdowney.org/2019/07/anyduck-a-value-type-erased-type/>

Introducing the Rule of DesDeMovA (1/4)

Blog post by Peter Sommerlad

<https://blog.safecpp.com/2019/07/01/initial.html>

https://accu.org/content/conf2014/Howard_Hinnant_Accu_2014.pdf

Rule of Zero:

Code that you do not write cannot be wrong.

Introducing the Rule of DesDeMovA (2/4)

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Peter Sommerlad

Rule of DesDeMovA

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Do you Remember: What Special Member Functions Do You Get?

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What you write	What you get					
	default constructor	destructor	copy constructor	copy assignment	move constructor	move assignment
nothing	defaulted	defaulted	defaulted	defaulted	defaulted	defaulted
any constructor	not declared	defaulted	defaulted	defaulted	defaulted	defaulted
default constructor	user declared	defaulted	defaulted	defaulted	defaulted	defaulted
destructor	defaulted	user declared	defaulted (!)	defaulted (!)	not declared	not declared
copy constructor	not declared	defaulted	user declared	defaulted (!)	not declared	not declared
copy assignment	defaulted	defaulted	defaulted (!)	user declared	not declared	not declared
move constructor	not declared	defaulted	deleted	deleted	user declared	not declared
move assignment	defaulted	defaulted	deleted	deleted	not declared	user declared

Howard Hinnant's Table: https://ericniebler.com/2016/06/06/Howard_Hinnant_Accept_2014.pdf
Note: Getting the defaulted special members denoted with a (!) is a bug in the standard.

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Introducing the Rule of DesDeMovA (3/4)

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Rule of DesDeMovA

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Rule of DesDeMovA: T&& operator=(T&&) noexcept=delete;

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What you write	default constructor		copy constructor		move constructor		move assignment	
	nothing	defaulted	nothing	defaulted	nothing	defaulted	nothing	defaulted
any constructor	not declared		not declared		not declared		not declared	
default constructor	user declared		user declared		user declared		user declared	
destructor	defaulted		user declared		user declared		user declared	
copy constructor	not declared		defaulted		defaulted		defaulted	
copy assignment	defaulted		defaulted		defaulted		defaulted	
move constructor	not declared		defaulted		defaulted		defaulted	
move assignment	defaulted		user declared		deleted		deleted	


DesDeMovA
Rule of if
Destructor defined
Deleted
Move Assignment

Howard Hinnant's Table: <https://ericniebler.com/2015/04/01/rule-of-five/>
Note: Getting the defaulted special members denoted with a (U) is a bug in the standard.

Introducing the Rule of DesDeMovA (3/4)

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Rule of DesDeMovA

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Summary 🍌 7

1. Rule of Zero
2. Rule of DesDeMovA (no copy, no move for SBRM/RAII and OO-Base classes)
3. Rule of Unique Resource Managers (move-only, no copy)
4. Rule of Five for Resource Managers with Value Semantics, or other really special cases



Download IDE at:
www.cevloop.com



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strong_typedef - Create distinct types for distinct purposes

Article by Anthony Williams

https://www.justsoftwaresolutions.co.uk/cplusplus/strong_typedef.html

https://github.com/anthonywilliams/strong_typedef

```
1 using transaction_id =  
2     jss::strong_typedef<struct transaction_tag, std::string>;  
3  
4 bool is_a_foo(transaction_id id)  
5 {  
6     auto &s = id.underlying_value();  
7     return s.find("foo") != s.end();  
8 }
```

<https://www.cycfi.com/2019/07/photon-micro-gui/>

[https:](https://www.reddit.com/r/cpp/comments/ccq9pn/elemental_c_gui_library/)

[//www.reddit.com/r/cpp/comments/ccq9pn/elemental_c_gui_library/](https://www.reddit.com/r/cpp/comments/ccq9pn/elemental_c_gui_library/)

Are there any good C++ libraries for data visualization?

- ▶ VTK <https://vtk.org/>
- ▶ ROOT <https://root.cern.ch/>
- ▶ matplotlib-cpp <https://github.com/lava/matplotlib-cpp>
 - ▶ matplotlib (Python) <https://matplotlib.org/>
- ▶ QCustomPlot (QT, GPL/commercial) <https://www.qcustomplot.com/>

<http://cppcast.com/2019/07/robert-maynard/>

https://www.reddit.com/r/cpp/comments/c9bpxb/cppcast_cmake_and_vtk_with_robert_maynard/

CMake line by line - creating a header-only library

<http://dominikberner.ch/cmake-interface-lib/>

https://www.reddit.com/r/cpp/comments/c8ty2h/a_line_by_line_explanation_how_to_create_a/

<https://github.com/bernedom/Sl>

Professional CMake: A Practical Guide, 4th ed., CMake 3.15

<https://crascit.com/professional-cmake/> \$30

Are there any OSES built using C++

https://www.reddit.com/r/cpp/comments/cho1qb/are_there_any_oses_built_using_c/

- ▶ TempleOS
- ▶ Haiku
- ▶ Google Fuchsia
- ▶ IncludeOS
- ▶ DistortOS (RTOS)
- ▶ Symbian OS (Dead)
- ▶ SerenityOS

Agner Vector Class Library V2

This is a C++17 class library for using the Single Instruction Multiple Data (SIMD) instructions in modern microprocessors.

<https://www.agner.org/optimize/blog/read.php?i=1013>

<https://github.com/vectorclass/version2> (Apache 2.0)

Manual

https://github.com/vectorclass/manual/blob/master/vcl_manual.pdf

