C++ Club UK

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2019-08-15

Free Book > Pro TBB

C++ Parallel Programming with Threading Building Blocks

- PDF
- Epub

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

out_ptr

- P1132R6

Introducing the Rule of DesDeMovA (1/4)

Blog post by Peter Sommerlad

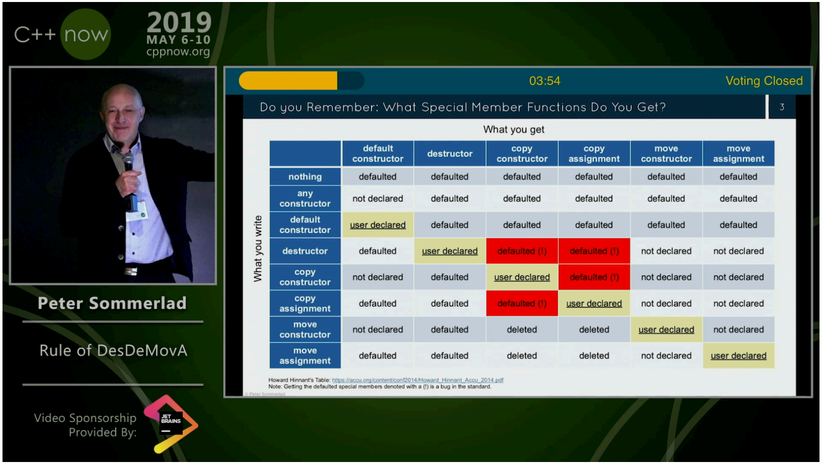
https://blog.safecpp.com/2019/07/01/initial.html

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)



Do you Remember: What Special Member Functions Do You Get? 3

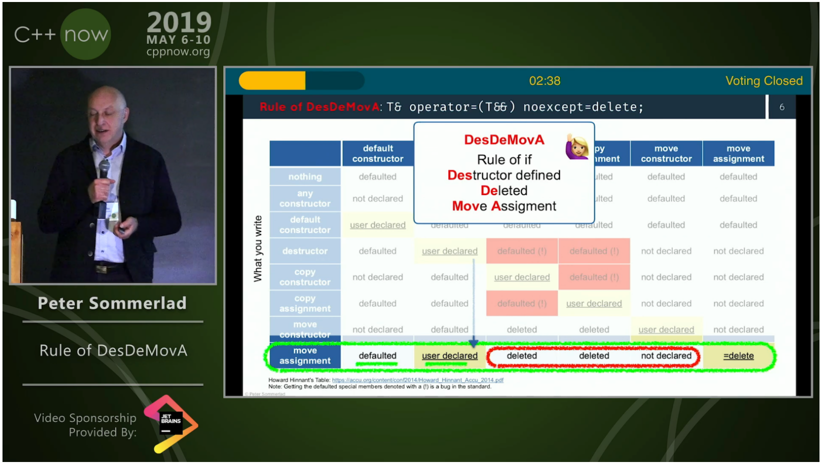
What you get

What you write	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://accu.org/content/conf2014/Howard_Hinnant_Accu_2014.pdf
Note: Getting the defaulted special members denoted with a (!) is a bug in the standard.

© Peter Sommerlad

Introducing the Rule of DesDeMovA (3/4)



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

DesDeMovA
Rule of if
Destructor defined
Deleted
Move **A**ssigment

What you write

	default constructor			py ment	move constructor	move assignment
nothing	defaulted			ulted	defaulted	defaulted
any constructor	not declared			lted	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	user declared	deleted	deleted	not declared	=delete

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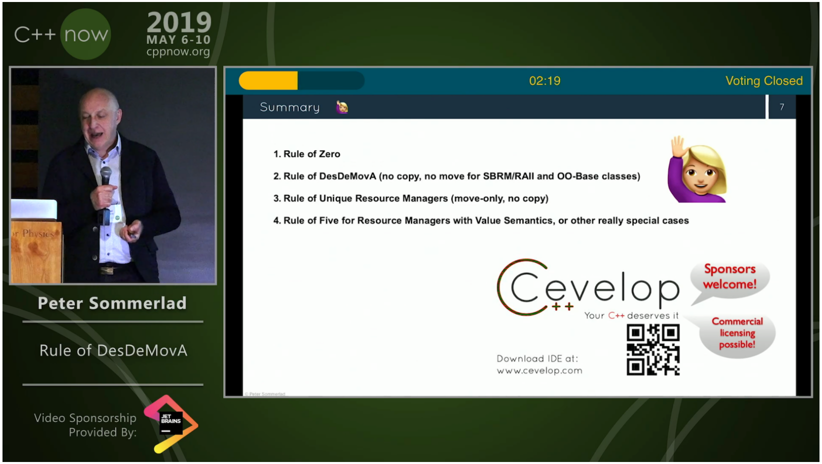

Summary

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

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

```cpp
using transaction_id =
  jss::strong_typedef<struct transaction_tag, std::string>;

bool is_a_foo(transaction_id id)
{
  auto &s = id.underlying_value();
  return s.find("foo") != s.end();
}
```

Elements C++ GUI library

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

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/

CppCast - CMake and VTK with Robert Maynard

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/SI

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

Retro

Sun UNIX 4.2* Software Release 0.4
(*Berkeley Beta Release)
½" Boot Tape 700-0586-01
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