Section 2.1 C++11

Generalized PODs '11

The defaulted destructor must be nondeleted, which requires that each base class and nonstatic member destructor also be nondeleted and accessible:

```
// Type
                                                      Is trivial?
struct S5a { S5a() = default; };
                                                   // yes
struct S5b { S5b() = default; ~S5b(); };
                                                  // no, user-provided dtor
struct S5c { S5c() = default; ~S5c() = default; }; // yes
struct S5d { S5d() = default; ~S5d() = delete; }; // no, deleted dtor
struct S5e { private: ~S5e() = default; };
                                                  // Yes, but dtor is private.
// Type
                              Is trivial?
struct S5f : S5a { };
                          // Yes, S5a base class has trivial destructor.
struct S5g : S5b { };
                          // No, S5b base class has non-trivial destructor.
struct S5h { S5c c; };
                          // Yes, S5c member has trivial destructor.
struct S5i { S5d d[5]; }; // No, S5d has a deleted destructor.
struct S5j : S5e { };
                          // No, S5e base class destructor is not accessible.
```

Note that S5e above is trivial, but the destructor is private and cannot be used except by **friends**. The destructor for S5j is deleted because it cannot access the destructor for base class S5e, making S5j non-trivial.

7. The class has no user-provided copy constructors, move constructors, copy-assignment operators, or move-assignment operators:

```
// Type Is trivial?
struct S6a { }; // yes
struct S6b { S6b() = default;
        S6b(const S6b&) = default; }; // yes
struct S6c { S6c() = default;
        S6c(const S6c&); }; // no, has user-provided copy ctor
struct S6d { S6d() = default;
        S6d(const S6d&) = delete; }; // yes, no user-provided copy ctor
struct S6e { S6e& operator=(S6e&&); }; // no, user-provided move assignment
```

8. There is at least one nondeleted trivial copy constructor, move constructor, copy-assignment operator, or move-assignment operator. Each of these operations is trivial if it is not user-provided and if it invokes only trivial constructors or assignment operators for each base class and nonstatic data member. Additionally, the presence of either virtual functions or virtual base classes (items θ and ½ above) prevent the copy/move constructors and copy/move-assignment operators from being trivial:

```
// Type Is trivial?
struct S7a
{
    S7a() = default; // trivial default constructor
    S7a(const S7a&) = delete; // deleted copy constructor
```

427