

Section 2.1 C++11

Braced Init

`function1` in the previous code example, so these functions do not work for aggregates prior to C++20.

Uniform member initialization in generic code

With the addition of general braced initialization to C++11, class authors should consider whether constructors should use *direct* initialization or *direct list* initialization to initialize their bases and members. Note that since copy initialization and copy list initialization are not options, whether or not the constructor for a given base or member is **explicit** will never be a concern.

Prior to C++11, writing code that initialized aggregate subobjects, including arrays, with a set of data in the constructor’s member initializer list was not really possible. We could only *default-initialize*, *value-initialize*, or *direct-initialize* from another aggregate of the same type.

Starting with C++11, we are able to initialize aggregate members with a list of values, using aggregate initialization in place of direct list initialization for members that are aggregates:

```

struct S
{
    int i;
    std::string str;
};

class C
{
    int j;
    int a[3];
    S s;

public:
    C(int x, int y, int z, int n, const std::string t)
      : j(0)
      , a{ x, y, z } // ill formed in C++03, OK in C++11
      , s{ n, t }   // ill formed in C++03, OK in C++11
      {
      }
};

```

Note that as the initializer for `C.j` shows in the code example above, there is no requirement to consistently use either braces or parentheses for all member initializers.

As with the case of factory functions, the ~~class~~ author must make a choice for constructors between adding support for initializing aggregates versus narrowing conversion being ill formed. As mentioned earlier, since member initialization supports only *direct* list initialization, there is never a concern regarding **explicit** conversions in this context: