Subject: Allow to define pointer assignment
From: Van Snyder
Reference: 03-258r1, section 2.3.5

Number

TBD

Title

Allow to define pointer assignment.

Submitted By

J3

Status

For consideration.

Basic Functionality

Allow to define pointer assignment.

Rationale

In some applications, data structures arise that are sufficiently complicated that one cannot point to a place in the program and say "this is the appropriate place to deallocate such-and-such entity." In these cases, one can frequently use *reference counters* to keep track of the number of pointers of which the object is a target, and deallocate the object when its reference count is reduced to zero. This presently requires that all pointer reassignment be done within subroutines. This camouflages the abstraction, thereby increasing maintenance costs. In addition, all that is necessary to break this abstraction is a pointer assignment statement that doesn't change the reference counter.

Estimated Impact

Minor. A small new subclause after 7.4.2 and a small new subclause after 12.3.2.1.2.

Detailed Specification

Provide for defined pointer assignment in the same way as defined assignment is provided. This would allow to do the computations necessary to maintain reference counts within the procedure that defines the assignment, and would "cover up" intrinsic pointer assignment, thereby preserving abstraction.

Of course, it should be possible to bind these definitions to types.

This proposal would interact with the proposals to allow generics to be partial applications, to allow procedures that define assignment and operations to have additional optional arguments and to provide for a swap statement (that could be defined).

History