

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

1 **Number**

2 TBD

3 **Title**

4 Allow to define pointer assignment.

5 **Submitted By**

6 J3

7 **Status**

8 For consideration.

9 **Basic Functionality**

10 Allow to define pointer assignment.

11 **Rationale**

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

19 **Estimated Impact**

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

21 **Detailed Specification**

22 Provide for defined pointer assignment in the same way as defined assignment is provided. This would
23 allow to do the computations necessary to maintain reference counts within the procedure that defines
24 the assignment. Defining pointer assignment should not define NULLIFY.

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

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

29 **History**