

Subject: Compound assignment/operation generics would be useful  
From: Van Snyder  
Reference: 03-258r1, section 2.3.4

## 1 **Number**

2 TBD

## 3 **Title**

4 Compound assignment/operation generics would be useful.

## 5 **Submitted By**

6 J3

## 7 **Status**

8 For consideration.

## 9 **Basic Functionality**

10 Provide for compound assignment and operation generics.

## 11 **Rationale**

12 Some applications have complicated derived-type objects on which one wishes to define operations and  
13 assignment. In these cases, the result of the function that defines the operation will be an anonymous  
14 object of a derived type. Finalizers help to get these to work correctly, but don't address the performance  
15 problems that arise as a consequence of separating defined assignment from the defined operation, espe-  
16 cially if assignment is a "deep copy." These could be ameliorated if a compound assignment/operation  
17 generic interface could be defined.

## 18 **Estimated Impact**

19 Minor. A small subsection in Section 12.

## 20 **Detailed Specification**

21 Define a new variety of *generic-spec* that specifies compounded assignment and operation, e.g., INTER-  
22 FACE COMPOUND(=,.MYMULT.). The first thing-o would have to be "=" so it may not be necessary  
23 to say so. On the other hand, saying so leaves room to extend it to pointer assignment. The *generic-spec*  
24 could be used in an interface block or a GENERIC statement in a type definition.

25 These defined operations compounded with assignment would be used in statements of the form *variable*  
26 = *expr* .MYMULT. *expr* or *variable* = .MYUNARY. *expr*.

27 Require all of the procedures named or described within the interface block to be subroutines with two  
28 or three arguments, with the first becoming associated with the *variable* and the second (and third)  
29 becoming associated with the *expr*(s).

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

31 The proposals to allow generics to be partial applications, and to allow optional arguments for subpro-  
32 grams that define operations or assignment, would have impact on this specification.

## 33 **History**