Subject: Allow a polymorphic allocatable *variable* in intrinsic assignment
From: Van Snyder
Reference: 04-354r1

Number

TBD

Title

Allow a polymorphic allocatable *variable* in intrinsic assignment.

Submitted By

J3

Status

For consideration.

Basic Functionality

Allow a polymorphic allocatable *variable* in intrinsic assignment.

Rationale

We allow intrinsic assignment to change the extent or length type parameters of an allocatable *variable* in an assignment. Why not the type if it's also polymorphic? Surely that would be equally valuable. After all, it can be done with a DEALLOCATE statement followed by an ALLOCATE statement with a SOURCE= specifier. Why not allow the clearer intrinsic assignment statement?

Estimated Impact

Trivial for the standard, probably in the trivial-to-small range for processors. Estimated at meeting 169 to be at 4 on the JKR scale.

Detailed Specification

Allow a polymorphic allocatable *variable* in intrinsic assignment. Require *expr* to have the same rank as a polymorphic *variable*. If *variable* is allocated and polymorphic, deallocate it (as we do now if any bounds or length type parameters differ). Then allocate it with the same dynamic type, type parameters and bounds as *expr*. Or, we could say "if the dynamic type of *variable* is different from the dynamic type of *expr*, deallocate *variable*." It is necessary to specify which one because if we do the first, processors could not choose to do the second as a polite optimization without making finalization indeterminate. There could be a middle ground that mumbles about finalizers.

Here are illustrative edits, to give an idea of the effect on the standard.

[Replace "*variable* shall not be polymorphic" by "if *variable* is polymorphic it shall be allocatable".] 138:18

[Replace the first line of the "derived type" row and "Type of *expr*" column of Table 7.8 with "if *variable* is polymorphic it shall be TKR compatible (5.1.1.2) with *expr*; if *variable* is not polymorphic *expr* shall have the same declared type and same kind type parameter values as *variable*;".] 139:2+8

[Replace "or" by a comma; insert ", or if *variable* has a dynamic type different from the dynamic type of *expr*" after "differ".] 139:23

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1 [Delete "and".] 139:25

2 [Insert ", and with the same dynamic type as *expr* if *variable* is polymorphic" after "LBOUND(*expr*)".] 139:26

3 History