

Subject: One more thing for ALLOCATABLE dummy arguments
 From: Van Snyder

1 Introduction

Now that one can have an ALLOCATABLE dummy argument, it is reasonable for a developer to package some of the common processes dealing with allocatability into procedures.

For a POINTER, I write a procedure that deallocates it if it's associated, allocates it with specified bounds, checks the status, and issues an error message if the status is nonzero.

In one of my programs, I have similar procedures for rank-1, -2 and -3 pointers of type integer, real and double precision. I have put them all together into a single generic ALLOCATE_TEST. I'd like to do the same for ALLOCATABLE objects.

Unfortunately, I can't put these procedures into my generic ALLOCATE_TEST because I would have specific procedures that differ only in that one of the corresponding arguments is a pointer and the other one is allocatable, and everything else is the same.

This increases the cost of maintenance because if I change a pointer to an allocatable, I need to track down all of the references to ALLOCATE_TEST for that object and change them to whatever generic name I use for handling the same sort of problem for allocatable objects. The problem is actually greater because I have the same sorts of procedures for deallocation.

Since we can associate a pointer or allocatable actual argument either with a pointer or allocatable (respectively) dummy argument, or a nonpointer/nonallocatable dummy argument, we can't use allocatable vs. nonpointer/nonallocatable, or pointer vs. nonpointer/nonallocatable for generic resolution, but we could use pointer vs. allocatable. It turns out that this is exactly what is needed.

Doing so is not incompatible with any prior standard, or with the "allocatable components" TR: it is a compatible extension.

2 Edits

Edits refer to 01-007. Page and line numbers are displayed in the margin. Absent other instructions, a page and line number or line number range implies all of the indicated text is to be replaced by immediately following text, while a page and line number followed by + (-) indicates that immediately following text is to be inserted after (before) the indicated line. Remarks are noted in the margin, or appear between [and] in the text.

[Editor: "rank" ⇒ "rank, or one dummy argument shall be a pointer and the other allocatable" thrice.]	343:25, 37, 41
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[Editor: "or" ⇒ ","; "parameters" ⇒ "parameters, or one dtv argument shall be a pointer and the other allocatable".]	343:27
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[Editor: Delete "or" twice.]	343:36, 40
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