Subject: Named constant parameter values and extents from *initialization-expr*s
From: Van Snyder
Reference: 01-180, 04-101

Number

TBD

Title

Named constant parameter values and extents from *initialization-expr*s.

Submitted By

J3

Status

For Consideration.

Basic Functionality

As with character named constants, allow named constants of any type with length parameters to get their parameter values from the *initialization-expr*. Allow array named constants to get their extents from the *initialization-expr*.

Rationale

There was a good reason that a provision was made for named constants of character type to get their lengths from their *initialization-expr*s. For the same reason, it would be useful if array named constants could get their extents (or at least the last dimension's extent) from their *initialization-expr*s. For consistency it would be useful if named constants could get any of their length parameters from their *initialization-expr*s.

Estimated Impact

The material at the end of 4.4.4.1 should be moved to 4.2, and then generalized with a paragraph or two to cover all length parameters.

Small effect in some subclause of 5.1.2.5, if a change in syntax is chosen. A few paragraphs to explain how an array named constant gets its extents from the *initialization-expr*.

Estimated at meeting 169 to be at 4 on the JKR scale.

Detailed Specification

Allow array named constants to get their extents from the extents of their *initialization-expr*s. There are at least three possibilities for the syntax.

(1) Use asterisk only for the last dimension, with its lower bound being one. This is similar to assumed size for dummy arguments.
(2) Use asterisk for every dimension, with the lower bounds being one.
(3) Use colon for every dimension, optionally preceded by a lower bound. This is similar to assumed shape for dummy arguments.

In every case, the rank of the value would have to be the same as the rank of the named constant. In the first case, all extents but the last would have to be the same for the named constant and the *initialization-expr*.

The syntax choice could have depended on the disposition of the proposal in 04-197 to allow any combination of explicit and assumed shape, but that one didn't make the cut at meeting 169. If this proposal proceeds, we ought at least to keep in mind that the choice we make ought to leave the possibility of a consistent development of the other proposal.

Allow all named constants — not just array ones — to get the values of length parameters from the type parameters of the *initialization-expr*. The syntax should use an asterisk to indicate that a length parameter gets its value from the corresponding parameter of the *initialization-expr*. This is the way a character named constant gets the value of its length parameter from the *initialization-expr*. Using a colon to indicate that a length parameter gets its value from the corresponding parameter of the *initialization-expr* isn't appropriate because this is reserved for entities with the POINTER or ALLOCATABLE attribute.

For named constants of derived type, one should be able to specify a length parameter of the named constant, and the corresponding parameter of the *initialization-expr* would have to have the same value. This is the way that length parameters work in intrinsic assignment, which is how named constants get their values from their initialization expressions.

See 01-180 for an example.

History