

Subject: Integrating left-hand functions
 From: Van Snyder
 References: UK-007, UK-008

1 Introduction

UK-007 allows a pointer function as an actual argument that corresponds to a dummy argument that does not have INTENT(IN); the actual argument is the result's target. UK-008 allows a pointer function as the left-hand side of an intrinsic assignment; the value is assigned to the result's target. Conspicuously absent are several remaining cases of variable definition contexts (16.5.7) [423:29ff]

2 Specification

Allow a pointer function reference everywhere a variable other than a named variable is allowed. In all cases, the variable is the target of the function's result.

This paper proposes to change the fundamental definition of *variable* to include the "lvalue" case. Cases where "lvalue" is not allowed are (almost) already covered by using "named variable".

3 Syntax

No new syntax is required, although new syntax rules are needed and some syntax rules require change.

4 Edits

Edits refer to 04-007. 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 associated text, while a page and line number followed by + (-) indicates that associated text is to be inserted after (before) the indicated line. Remarks are noted in the margin, or appear between [and] in the text.

[The *do-variable* is exactly what's needed here – constraints and all.] 67:18-19

R401 *ac-do-variable* is *do-variable*

[The *do-variable* is exactly what's needed here – constraints and all.] 87:34

R402 *data-i-do-variable* is *do-variable*

[Editor: Delete because *do-variable* is exactly what's needed here – constraints and all.] 88:4

or *expr* 103:6+

C601 $\frac{1}{2}$ (R601) The *expr* shall be a reference to a function that has a pointer result. 103:7+

[Editor: Replace the RHS of *do-variable* (R831) with "*scalar-int-variable-name*" since we really want to strip everything else off.] 165:16

[Editor: Add a new paragraph:] 424:4+

If a reference to a function appears in a variable-definition context the result of the function reference shall be a pointer that is associated with a definable target. That target is the variable that becomes defined or undefined.

5 Integration with 014

Delete the edits for these two places introduced by 05-278r2 (but maybe keep the revision of C715, revised to refer to R734, for aesthetic reasons). 138:12-13, 15+

[In the edit introduced by 06-138r2, replace the first "*scalar-int-variable*" by "variable" and the second by "the variable", since it's the variable, not the syntax term, that gets a value (probably need this anyway).] 183:32+

1 6 Editorial suggestions

2 We probably need this stuff anyway, so we might as well say it here to avoid forgetting it.

3 [Editor: Add a new third paragraph in 8.1.4.3:] 161:23+

4 If the selector is a pointer it shall be associated with a target; the target is associated with the associating
5 entity.

6 [Editor: Insert “nonpointer” before “variable”.] 189:21

7 If a pointer appears in the contexts specified above for a nonpointer variable, the pointer shall be 189:26+ New ¶
8 associated with a target that has the ASYNCHRONOUS attribute.

9 [Editor: Replace “*scalar-default-char-variable*”, “*scalar-int-variable*” and “*scalar-default-logical-variab-*
10 *le*” by “variable” throughout 9.9.1.2 through 9.9.1.32, since it’s the variable, not the syntax term, that
11 gets a value.] 211:21-216:12

12 [Editor: Replace “*scalar-int-variable*” by “variable”, since it’s the variable, not the syntax term, that 216:25
13 gets a value.]

14 [Editor: Replace “*scalar-int-variable*” by “variable”, since it’s the variable, not the syntax term, that 217:17
15 gets a value.]

16 [Editor: Replace “*iomsg-variable*” by “variable in the IOMSG= specifier”, since it’s the variable, not 217:19
17 the syntax term, that gets a value.]

18 [Editor: Replace “*scalar-int-variable*” by “variable”, since it’s the variable, not the syntax term, that 217:20-21
19 gets a value.]

20 [Editor: Replace “*scalar-int-variable*” by “variable”, since it’s the variable, not the syntax term, that 217:40
21 gets a value.]

22 [Editor: Replace “*iomsg-variable*” by “variable in the IOMSG= specifier”, since it’s the variable, not 217:42
23 the syntax term, that gets a value.]

24 [Editor: Replace “*scalar-int-variable*” by “variable”, since it’s the variable, not the syntax term, that 218:14
25 gets a value.]

26 [Editor: Replace “*iomsg-variable*” by “variable in the IOMSG= specifier”, since it’s the variable, not 218:16
27 the syntax term, that gets a value.]

28 [Editor: Replace “*scalar-int-variable*” by “variable”, since it’s the variable, not the syntax term, that 218:17
29 gets a value.]

30 [Editor: Replace “An ... or” by “a *scalar-int-variable* in an IOSTAT= or SIZE= specifier, or an *iomsg-*
31 *variable* in an”.] 423:41

32 [Editor: Replace “definable variable” by “variable” (or “*scalar-default-char-variable*, *scalar-int-variable*, 423:42
33 or *scalar-default-logical-variable*”).]