

Subject: Integrating left-hand functions
 From: Van Snyder
 References: UK-007, UK-008, J3-002

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 as a *scalar-int-variable* or *iormsg-variable* in an input/output statement, as an *internal-file-variable* in a WRITE statement, as an *input-item* in a READ statement, as a *stat-variable* or *errormsg-variable* in an ALLOCATE or DEALLOCATE statement, or as a *variable* that is a *selector* in a SELECT TYPE or ASSOCIATE construct. In all cases, the variable is the target of the function's result.

3 Syntax

No new syntax is required, although two new syntax rules are needed and several 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.

These edits depend upon those from 05-278r2. In particular, upon the definitions of *assigned-variable* and **assigned variable**

[Editor: Add another sentence in the third paragraph in 2.4.6: "If a data pointer is associated with a target, the target is a variable (2.4.3.1.1)." (probably need this anyway).] 18:29

[Editor: In the right-hand-side of the definition of *stat-variable* (R625), replace "*scalar-int-variable* by "*scalar-int-assigned-variable*".] 110:17

[Editor: Insert the following new syntax rule:] 110:17+
 R625 $\frac{1}{2}$ *int-assigned-variable* **is** *assigned-variable*

[Editor: In the right-hand-side of the definition of *errormsg-variable* (R626), replace "*scalar-default-char-variable*" by "*scalar-default-char-asg-variable*".] 110:18

[Editor: Insert the following new syntax rule:] 110:18+
 R626 $\frac{1}{2}$ *default-char-asg-variable* **is** *assigned-variable*

[Editor: Insert the following new constraints:] 111:5+
 C621 $\frac{1}{3}$ (R625 $\frac{1}{2}$) *int-assigned-variable* shall be of type integer.
 C621 $\frac{2}{3}$ (R626 $\frac{1}{2}$) *default-char-asg-variable* shall be of type default character.

[Editor: Within C808, replace "not a *variable*" by "neither a *variable* nor an *expr* that has a pointer result,."] 160:14

[Editor: Within the first sentence in the first paragraph in 8.1.4.3, replace "associated" by "corresponding" (probably need this anyway).] 161:16

1	[Editor: Add a new third paragraph in 8.1.4.3 (probably need this anyway):]	161:23+
2	If the selector is a pointer it shall be associated with a target; the target is associated with the associating	
3	entity.	
4	[Editor: Replace <i>char-variable</i> by <i>assigned-variable</i> in R903, C901 and C902.]	178:25-27
5	[Editor: In the right-hand-side of the definition of <i>connect-spec</i> (R905), replace “IOSTAT = <i>scalar-int-</i>	181:33
6	<i>variable</i> ” by “IOSTAT = <i>scalar-int-assigned-variable</i> ”.]	
7	[Editor: In the right-hand-side of the definition of <i>iomsg-variable</i> (R907), replace “ <i>scalar-default-char-</i>	181:41
8	<i>variable</i> ” by “ <i>scalar-default-char-asg-variable</i> ”.]	
9	[Editor: In the right-hand-side of the definition of <i>close-spec</i> (R909), replace “IOSTAT = <i>scalar-int-</i>	185:22
10	<i>variable</i> ” by “IOSTAT = <i>scalar-int-assigned-variable</i> ”.]	
11	[Editor: In the right-hand-side of the definition of <i>io-control-spec</i> (R913), replace “ID = <i>scalar-int-</i>	187:2
12	<i>variable</i> ” by “ID = <i>scalar-int-assigned-variable</i> ”.]	
13	[Editor: In the right-hand-side of the definition of <i>io-control-spec</i> (R913), replace “IOSTAT = <i>scalar-</i>	187:4
14	<i>int-variable</i> ” by “IOSTAT = <i>scalar-int-assigned-variable</i> ”.]	
15	[Editor: In the right-hand-side of the definition of <i>io-control-spec</i> (R913), replace “SIZE = <i>scalar-int-</i>	187:10
16	<i>variable</i> ” by “SIZE = <i>scalar-int-assigned-variable</i> ”.]	
17	[Editor: In the right-hand-side of the definition of <i>input-item</i> (R915), replace “ <i>variable</i> ” by “ <i>assigned-</i>	191:30
18	<i>variable</i> ”.]	
19	[Editor: In the right-hand-side of the definition of <i>wait-spec</i> (R922), replace “IOSTAT = <i>scalar-int-</i>	206:11
20	<i>variable</i> ” by “IOSTAT = <i>scalar-int-assigned-variable</i> ”.]	
21	[Editor: In the right-hand-side of the definition of <i>position-spec</i> (R926), replace “IOSTAT = <i>scalar-int-</i>	207:17
22	<i>variable</i> ” by “IOSTAT = <i>scalar-int-assigned-variable</i> ”.]	
23	[Editor: In the right-hand-side of the definition of <i>flush-spec</i> (R928), replace “IOSTAT = <i>scalar-int-</i>	209:6
24	<i>variable</i> ” by “IOSTAT = <i>scalar-int-assigned-variable</i> ”.]	
25	[Editor: Replace “ <i>scalar-default-char-variable</i> ” by “ <i>scalar-default-char-asg-variable</i> ” and “ <i>scalar-int-</i>	210:9-211:1
26	<i>variable</i> ” by “ <i>scalar-int-assigned-variable</i> ” throughout.]	
27	[Editor: Replace “ <i>scalar-default-char-variable</i> ” and “ <i>scalar-int-variable</i> ” by “assigned variable” through-	211:21-216:12
28	out 9.9.1.2 through 9.9.1.32, since it’s the variable, not the syntax term, that gets a value (probably	
29	need something like this anyway).]	
30	[Editor: Replace “ <i>scalar-int-variable</i> ” by “assigned variable”, since it’s the variable, not the syntax term,	217:17
31	that gets a value (probably need something like this anyway).]	
32	[Editor: Replace “ <i>iomsg-variable</i> ” by “assigned variable in the IOMSG= specifier”, since it’s the variable,	217:19
33	not the syntax term, that gets a value (probably need something like this anyway).]	
34	[Editor: Replace “ <i>scalar-int-variable</i> ” by “assigned variable”, since it’s the variable, not the syntax term,	217:20-21
35	that gets a value (probably need this anyway).]	
36	[Editor: Replace “ <i>scalar-int-variable</i> ” by “assigned variable”, since it’s the variable, not the syntax term,	217:40
37	that gets a value (probably need something like this anyway).]	
38	[Editor: Replace “ <i>iomsg-variable</i> ” by “assigned variable in the IOMSG= specifier”, since it’s the variable,	217:42
39	not the syntax term, that gets a value (probably need something like this anyway).]	
40	[Editor: Replace “ <i>scalar-int-variable</i> ” by “assigned variable”, since it’s the variable, not the syntax term,	218:14
41	that gets a value (probably need something like this anyway).]	
42	[Editor: Replace “ <i>iomsg-variable</i> ” by “assigned variable in the IOMSG= specifier”, since it’s the variable,	218:16

- 1 not the syntax term, that gets a value (probably need something like this anyway).]
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- 2 [Editor: Replace “*scalar-int-variable*” by “assigned variable”, since it’s the variable, not the syntax term, 218:17
3 that gets a value (probably need something like this anyway).]
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- 4 [Editor: Insert a new item between (7) and (8) (this is really part of J3-002 and should have been in 423:40+
5 06-138r2).]
- 6 (7½) a *scalar-int-assigned-variable* in a NEWUNIT= specifier in an OPEN statement,
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- 7 [Editor: Replace “An ...or” by “a *scalar-int-assigned-variable* in an IOSTAT= or SIZE= specifier, or 423:41
8 an *iormsg-variable* in an” (probably need something like this anyway).]
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- 9 [Editor: Replace “definable variable” by “*scalar-int-assigned-variable*, *scalar-default-char-arg-variable* 423:42
10 or *iormsg-variable*”.]
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- 11 [Editor: Add a new paragraph:] 424:4+
- 12 If a reference to a function appears in a variable-definition context the result of the function reference
13 shall be a pointer that is associated with a definable target. That target is the variable that becomes
14 defined or undefined.

15 5 Integration with 014

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- 16 Given the edit in the previous section for [424:4+], the second sentence in the edit for 138:15+ that was
17 added by 05-278r2 might not be really needed (but it probably doesn’t hurt anything). If it is needed,
18 it needs to require the target to be definable:
- 19 The **assigned variable** denoted by *assigned-variable* is the *variable* or the target of the result of *expr*. 138:15+ New ¶
20 The result of the function reference shall be a pointer that is associated with a definable target.
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- 21 [In the edit introduced by 06-138r2, replace “*scalar-int-variable*” by “*scalar-int-assigned-variable*”.] 181:33+
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- 22 [In the edit introduced by 06-138r2, replace the first “*scalar-int-variable*” by “assigned variable” and 183:32+
23 the second by “the assigned variable”, since it’s the variable, not the syntax term, that gets a value
24 (probably need this anyway).]