

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 as a *scalar-int-variable* or *iomsg-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 *errmsg-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**

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[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

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

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

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

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

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

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

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[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-assignment-variable</i> ”.]	
7	[Editor: In the right-hand-side of the definition of <i>iormsg-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-assignment-variable</i> ”.]	
11	[Editor: In the right-hand-side of the definition of <i>io-control-spec</i> (R913), replace “IOSTAT = <i>scalar-</i>	187:4
12	<i>int-variable</i> ” by “IOSTAT = <i>scalar-int-assignment-variable</i> ”.]	
13	[Editor: In the right-hand-side of the definition of <i>io-control-spec</i> (R913), replace “SIZE = <i>scalar-int-</i>	187:10
14	<i>variable</i> ” by “SIZE = <i>scalar-int-assignment-variable</i> ”.]	
15	[Editor: In the right-hand-side of the definition of <i>input-item</i> (R915), replace “ <i>variable</i> ” by “ <i>assignment-</i>	191:30
16	<i>variable</i> ”.]	
17	[Editor: Replace “ <i>scalar-default-char-variable</i> ” by “ <i>scalar-default-char-asg-variable</i> ” and “ <i>scalar-int-</i>	210:9-210:1
18	<i>variable</i> ” by “ <i>scalar-int-assignment-variable</i> ” throughout.]	
19	[Editor: Replace “ <i>scalar-default-char-variable</i> ” and “ <i>scalar-int-variable</i> ” by “variable” throughout, since	211:21-216:12
20	it’s the variable, not the syntax term, that gets a value (probably need this anyway).]	
21	[Editor: Replace “ <i>scalar-int-variable</i> ” by “variable”, since it’s the variable, not the syntax term, that	217:17
22	gets a value (probably need this anyway).]	
23	[Editor: Replace “ <i>iormsg-variable</i> ” by “variable in the IOMSG= specifier”, since it’s the variable, not	217:19
24	the syntax term, that gets a value (probably need this anyway).]	
25	[Editor: Replace “ <i>scalar-int-variable</i> ” by “variable”, since it’s the variable, not the syntax term, that	217:20-21
26	gets a value (probably need this anyway).]	
27	[Editor: Replace “ <i>scalar-int-variable</i> ” by “variable”, since it’s the variable, not the syntax term, that	217:40
28	gets a value (probably need this anyway).]	
29	[Editor: Replace “ <i>iormsg-variable</i> ” by “variable in the IOMSG= specifier”, since it’s the variable, not	217:42
30	the syntax term, that gets a value (probably need this anyway).]	
31	[Editor: Replace “ <i>scalar-int-variable</i> ” by “variable”, since it’s the variable, not the syntax term, that	218:14
32	gets a value (probably need this anyway).]	
33	[Editor: Replace “ <i>iormsg-variable</i> ” by “variable in the IOMSG= specifier”, since it’s the variable, not	218:16
34	the syntax term, that gets a value (probably need this anyway).]	
35	[Editor: Replace “ <i>scalar-int-variable</i> ” by “variable”, since it’s the variable, not the syntax term, that	218:17
36	gets a value (probably need this anyway).]	
37	[Editor: Add a new paragraph:]	268:1-
38	If a reference to a function appears in a variable-definition context (16.5.7) the result of the function	
39	reference shall be an associated pointer; the variable that becomes defined or undefined is the target of	
40	that pointer.	
41	[This could alternatively be put at [424:4+] (without the self reference).]	
42	[Editor: Insert a new item between (7) and (8).]	423:40+

- 1 (7 $\frac{1}{2}$ ) a *scalar-int-assignment-variable* in a NEWUNIT= specifier in an OPEN statement,  
 2 [Editor: Replace “An . . . or” by “A *scalar-int-assignment-variable* in an IOSTAT= or SIZE= specifier, 423:41  
 3 or an *iomsg-variable* in an”.]
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- 4 [Editor: Replace “definable variable” by “*scalar-int-assignment-variable*, *scalar-default-char-asg-variable* 423:42  
 5 or *iomsg-variable*”.]

## 6 5 Integration with 014

- 7 Given the edit in the previous section for [268:1-], the second sentence in the edit for 138:15+ that was  
 8 added by 05-278r2 isn’t really needed (but it probably doesn’t hurt anything):
- 9 The **assigned variable** denoted by *assigned-variable* is the *variable* or the target of the result of *expr*. 138:35+ New ¶  
 10 The result of the function reference shall be an associated pointer.
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- 11 [In the edit introduced by 06-138r2, replace “*scalar-int-variable*” by “*scalar-int-assignment-variable*”.] 181:33+
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- 12 [In the edit introduced by 06-138r2, replace the first “*scalar-int-variable*” by “variable” and the second 183:32+  
 13 by “the variable”, since it’s the variable, not the syntax term, that gets a value (probably need this  
 14 anyway).]