Subject: Thoughts stimulated by issue 216
From: Van Snyder

1 Introduction

In issue 216, the editor suggests "The interaction between ASYNCHRONOUS or VOLATILE and the ASSOCIATE or SELECT TYPE construct needs to be described."

In pondering this, I began also to wonder how the INTENT, VALUE and TARGET attributes of the [type] selector should be related to the associate name. In the case of the ASSOCIATE construct, but not the SELECT TYPE construct, it is specified that the associate name does not have the ALLOCATABLE or POINTER attribute.

In any case, the rules about attributes for *associate-name* should be as nearly the same as possible in the two constructs.

The intent during the design was to make construct association similar to argument association. The similarity was not exact, however, in that the type, type parameters, "polymorphicity," rank and bounds "leak through" the association without being specified. Allowing the ASYNCHRONOUS, INTENT, and TARGET attributes to "leak through" as well has useful functionality. E.g., one gets the semantics of INTENT "for free."

The following edits allow the above attributes to "leak through" the association. In particular, a section 8.1.4.5 is introduced to describe the block in both constructs; thus the rules are the same, except for the type, type parameters, and polymorphicity, which are described in the separate sections.

2 Edits

Edits refer to 00-007. 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 for the editor are noted in the margin, or appear between [and] in the text.

[Editor: Replace "**construct**" by "**and ASSOCIATE constructs**".]	152:16
[Editor: Move 154:28 to here and make it part of this paragraph.]	152:18
[Editor: Replace "*type-selector*" by "*selector*" and replace "type selector" by "selector" throughout. Yes, I've checked – a global search-and-replace, if FRAME offers such a feature, is OK.]	152:19-153:34
[Editor: Move the constraint at 154:35-36 to replace the one here.]	152:29-30
[Editor: Delete from the second "The associate" to the end of the paragraph (exactly two whole sentences).]	153:9-10
[Editor: Add a comma after "polymorphic" and delete the "and". Within the sentence at the end, add ", and has the type parameters of the selector".]	153:26-27
[Editor: Add a new sentence at the end "The type parameters of the associate name are the type parameters of the type specified in the TYPE IN type guard statement."]	153:30

[Editor: Add a new sentence at the end "The type parameters of the associate name are the type parameters of the declared type of the selector."] 153:32

The remaining attributes of the *associate-name* are described in 8.1.4.5. 153:32+

[Editor: Delete the section heading – subsections of 8.1.5 becomes subsections of 8.1.4.] 154:27

[Already moved away from here to 152:29-30.] 154:35-36

[Editor: Delete – now covered by *selector* and its constraints in 8.1.4.1.] 154:37-38

[Editor: Replace ", type parameters, rank, and bounds" by "and type parameters." The "rank and bounds" are specified in 8.1.4.5.] 154:47

[Editor: Delete "If the selector" to the end of the paragraph – covered in 8.1.4.5.] 155:1-4

[Editor: Delete note 216. It reappears below.] 155:5-8

[Editor: Delete – covered in 8.1.4.5. Insert a new paragraph "The remaining attributes of the *associate-name* are described in 8.1.4.5."] 155:9-12

8.1.4.5 Attributes of associate names 155:18+

J3 internal note

Unresolved issue 216
The interaction between VOLATILE and the SELECT TYPE or ASSOCIATE construct needs to be described. If we knew the intended interaction between VOLATILE and statement functions, it would be the same for these constructs.

Within a SELECT TYPE or ASSOCIATE construct, each associate name has the same rank and bounds as its associated selector, and has the ASYNCHRONOUS, INTENT or TARGET attribute if and only if the selector has the attribute.

Note 8.13$\frac{1}{2}$

If the selector (8.1.4.1) may not appear in a variable definition context (14.7.7), the associate name shall not appear in a variable definition context.

[Editor: Move 8.1.4.3 (153:35 – 154:26) to here.]

Execution of a SELECT TYPE statement establishes an association between the selector and the associate name of the construct. Execution of an ASSOCIATE statement establishes an association between each selector and the corresponding associate name of the construct. 351:43-352:5

If the selector is allocatable, it shall be currently allocated; the associate name is associated to the data object and does not have the ALLOCATABLE attribute.

If the selector has the POINTER attribute it shall be associated; the associate name is associated to the target of the pointer and does not have the POINTER attribute.

If the selector is a variable other than an array section with a vector subscript, the association is to the data object specified by the selector; otherwise, the association is to the value of the selector expression, which is evaluated prior to execution of the block.

Each associate name remains associated to the corresponding selector throughout execution of the construct. Within the construct, each selector is known by and may be accessed by the corresponding associate name. Upon termination of the construct, the association is terminated.

[Editor: Move 155:13-16 (Note 8.13) to here, then change "substring ranges" to "nonkind type parameters".]

[Editor: Delete "*type*-"; add "or ASSOCIATE" after "TYPE".] 360:9