

Subject: Compute whether an actual argument is present  
From: Van Snyder  
Reference: 03-258r1, section 2.8.1; 04-192, 04-357r1 04-393

## 1 **Number**

2 TBD

## 3 **Title**

4 Compute whether an actual argument is present.

## 5 **Submitted By**

6 J3

## 7 **Status**

8 For consideration.

## 9 **Basic Functionality**

10 Provide a mechanism to compute whether an actual argument is present.

## 11 **Rationale**

12 If the presence of an argument controls whether a calculation is performed, and if the desire to perform  
13 the calculation is determined by the results of other calculations, one needs to be able to compute  
14 whether the argument is present or absent. In Fortran 2003, the way to do this is with an IF construct.  
15 But with  $n$  arguments, one needs a  $2^n$ -way if-elseif...-else-endif construct with a different one of the  $2^n$   
16 possible combinations of present actual arguments in each branch. It would be more convenient if one  
17 could use a syntactic form for an actual argument to calculate whether it is present. It is important that  
18 the desired entity, not the value of it, is the actual argument. Otherwise, it would not be useful where  
19 the associated dummy argument does not have INTENT(IN).

## 20 **Estimated Impact**

21 This is part of the proposal in J3 paper 04-393, whose antecedent was 04-357r1. At J3 meeting 169, the  
22 proposal in 04-357r1 was judged to be at 4 on the JKR scale. Surely this proposal, being only part of  
23 the previous one, is not larger.

## 24 **Detailed Specification**

25 Provide a mechanism to compute whether an actual argument is present.

26 If the condition specifies that the actual argument is present, to be useful in the case the desired entity  
27 is not an expression, or is a procedure argument, it, rather than the value of it, must become the actual  
28 argument. No matter what syntax is used, if there is no special description it cannot be called a function  
29 or operation, because the result would be a value separate from the desired entity itself.

30 If the condition specifies that the actual argument is absent, neither the entity that would otherwise  
31 become the actual argument, nor any expressions within it, shall be evaluated. That the condition  
32 specifies the entity is considered to be absent might be a proxy for the nonexistence of values necessary  
33 for these evaluations.

1 **Examples**

2 Several syntaxes are possible. Two under consideration are similar to a function reference, and similar  
3 to an operator.

4 CALL MY\_SUB ( A, IF(PRESENT(B),B(:,I)) )

5 or

6 CALL MY\_SUB ( A, PRESENT(B) ? B(:,I) )