

TO: MSPM Distribution  
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SUBJ: "Extensions" to PL/I (BY.10.02,BY.10.03)  
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The two attached MSPM sections are an attempt to solve some of the recurring problems involved in passing strings as arguments between procedures, especially when conversion from varying to non-varying strings (or vice-versa) results in extreme inconvenience on the part of the programmer.

Identification

Length function for PL/I strings  
 lg\$bs, lg\$cs, lg\$max\_bs, lg\$max\_cs  
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Purpose

The functions described below obtain the current or maximum length of PL/I strings which have been passed as arguments to a procedure. They differ from the generic length functions in PL/I by performing properly when string parameters do not quite match between caller and callee; i.e., they permit varying strings to be passed to procedures in which they are declared non-varying, and vice-versa. The functions also provide the equivalent of a max\_length function, to be used when one needs to know not the current length but the maximum length of a varying string. These functions are coded in EPLBSA as one segment; they could be replaced by equivalent changes to the length built-in function in EPL (and a new function max\_length) to execute the code in line.

Usage and Implementation

```

dcl x {bit
      char} (*),          /*argument of procedure*/
      (lg$bs, lg$cs,
       lg$max_cs, lg$max_cs)
      entry ext fixed bin(17),
      (n, max_n) fixed bin(17);

```

$$n = \text{lg}\$ \left\{ \begin{array}{l} \text{bs} \\ \text{cs} \end{array} \right\} (x)$$

$$\text{max\_n} = \text{lg}\$ \left\{ \begin{array}{l} \text{max\_bs} \\ \text{max\_cs} \end{array} \right\} (x);$$

The functions examine the dope for the string x (BP.2.02) and extract the requisite length information: if x is non-varying, then the pairs of functions (lg\$bs, lg\$max\_bs) and (lg\$cs, lg\$max\_cs) return identical values. If x is a varying string, then lg\$bs and lg\$cs return the "current length" of x, while lg\$max\_bs and lg\$max\_cs return the maximum length of x. For the "cs" entries, the length in bits is divided by 9 before the value is returned.

Error Checking

If invalid dope is passed for the string x, an error code of 1 is recorded using the standard error procedures of BY.11, and "lg\_err" is signalled. For the "cs" entries, an error code of 2 is recorded if there is a remainder after the division and "lg\_err" is signalled.