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
lgbs, lgcs, lgmax_bs, lgmax_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 <u>length</u> 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 <u>length</u> built-in function
in EPL (and a new function max_length) to execute the
code in line.

Usage and Implementation

$$\text{dcl } x \begin{Bmatrix} \text{bit} \\ \text{char} \end{Bmatrix}(*), \qquad \text{/*argument of procedure*/}$$

$$\text{(lg\$bs, lg\$cs,} \\ \text{lg\$max\_cs, lg\$max\_cs)}$$

entry ext fixed bin(17),

(n, max_n) fixed bin(17);

$$n = lg\$ \begin{Bmatrix} \text{bs} \\ \text{cs} \end{Bmatrix} (x)$$

$$max\_n = lg\$ \begin{Bmatrix} \text{max\_bs} \\ \text{max\_cs} \end{Bmatrix} (x);$$

The functions examine the dope for the string <u>x</u> (BP.2.02)
and extract the requisite length information; if <u>x</u> is
non-varying, then the pairs of functions (lgbs, lgmax_bs)
and (lgcs, lgmax_cs) return identical values. If <u>x</u>
is a varying string, then lg$bs and lg$cs return the "current
length" of <u>x</u>, while lg$max_bs and lg$max_cs return the
maximum length of <u>x</u>. 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.