P1 CR for totalorder parameters

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C FP Group

TS 18661-1 CR nn
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Reference Document: TS 18661-1
Subject: totalorder parameters

Summary
The IEC 60559 totalOrder operation provides a total ordering of the canonical members of the format, including signaling NaNs. Therefore the binding C function totalorder, specified in TS 18661-1, must be able to accept signaling NaN inputs. Currently the parameters for totalorder have floating type, whose argument passing may convert a signaling NaN argument into a quiet NaN parameter value. The following suggested changes use pointers to preserve signaling NaN inputs.

Suggested Technical Corrigendum
In F.10.12.1 (TS 18661-1), change:

    int totalorder(double x, double y);

to:

    int totalorder(double * x, double * y);

and similarly for the other prototypes in F.10.12.1 and F.10.12.2.

In F.10.12.1 (TS 18661-1), change:

Description
[2] The totalorder functions determine whether the total order relationship, defined by IEC 60559, is true for the ordered pair of its arguments \(x, y\). These functions are fully specified in IEC 60559. These functions are independent of the current rounding direction mode and raise no floating-point exceptions, even if an argument is a signaling NaN.

Returns
[3] The totalorder functions return nonzero if and only if the total order relation is true for the ordered pair of its arguments \(x, y\).

to:
Description

[2] The `totalorder` functions determine whether the total order relationship, defined by IEC 60559, is true for the ordered pair \( *x, *y \). These functions are fully specified in IEC 60559. These functions are independent of the current rounding direction mode and raise no floating-point exceptions, even if \( *x \) or \( *y \) is a signalling NaN.

Returns

[3] The `totalorder` functions return nonzero if and only if the total order relation is true for the ordered pair \( *x, *y \).

and similarly for F.10.12.2.