Proposal for C2Y
WG14 N3877

Title:	Refine fromfp to address the sign of a zero return value
Author, affiliation:	CFP group
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Proposal category:	Editorial
References:	N3854

Rationale:

Joseph Myers points out that, to date, the `fromfp` family of functions do not specify the sign of a zero return value. This proposal addresses the matter.

The `fromfp` and `ufromfp` functions take an `unsigned int` parameter `width`. Depending on the possible prefix 'u' in the function name, the return value corresponds to an unsigned or a 2's-complement binary `width`-bit integer.

In both unsigned and 2's-complement integer representations zero has no algebraic sign. The natural behavior for `fromfp` is thus to return +0 when it returns zero in a type that supports signed zero, regardless of the rounding operation that arrives at the result.

Suggested change:

Change to 7.12.10.10p2:

From:

. . . then the functions return the integer value (represented in floating type). Otherwise . . .

To:

. . . then the functions return the integer value (represented in floating type); a zero return value is always positive or unsigned zero. Otherwise . . .

Compatibility:

This proposal fills a gap in the existing specification of the `fromfp` family. It may thus break some existing implications. Because the typical next step after applying `fromfp` is to convert its result to an integer type that has no representation of negative zero, it is unlikely that a program can depend on the sign of a zero result.