

Document: N1481
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Subject: Comparison Macro Argument Conversion

This note follows up on N1472 and the committee decision to leave unspecified whether widened arguments to comparison macros are narrowed to their semantic type.

A primary goal of Annex F is predictable floating-point behavior for conforming IEEE implementations that use IEEE features and standard evaluation methods. Leaving the evaluation of the IEEE comparison macro arguments unspecified is inconsistent with this goal.

An alternative would be to specify the argument behavior only for Annex F implementation. Not narrowing widened arguments is the most natural interpretation of the C99 specification and consistent with the macros' being stand-ins for comparison operators, so is preferred. This argues to

1. Disallow narrowing widened arguments (though only for Annex F implementations)

There are significant implementations that narrow widened arguments, and ones that do not. If accommodating implementations is deemed necessary, then a fallback might be

2. Make the behavior implementation defined and deprecate narrowing widened arguments (only for Annex F implementation)

If the committee chooses to simply leave the argument conversion behavior unspecified, then the burden is on the user to make the macros predictable. Since predictability is a key goal of Annex F, an example or footnote should be provided - in Annex F - in order to alert the user to the problem and show how it might be avoided.