

Add N3607 To the list of papers that should be applied to previous standards.

Paper n3778.

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For consideration by the WG14

At the 2025 Graz meeting paper N3607 "Retire the concept of consume operations" authored by Jens Gusted was accepted for the C2Y standard. N3607 changes the standard to conform to implementations by removing the "consume" memory order from the standard. In all existing implementations, "Consume" is implemented as an "acquire" operation, and C2y is now slated to mandate this behaviour. This means that even though N3607 breaks backwards compatibility with previous standards, it does not break backwards compatibility with existing implementations.

However, any future implementations that implements C11, C17 or C23 could in theory be written to conform to an incompatible memory model where "Consume" is not implemented as a "Acquire" operation. We would like any new implementation to be compatible with existing implementations, and future implementations of C2Y and implement Consume as an Acquire even when a user selects a legacy version of the language. We want to avoid any case where the memory model behaviour would change when a user selects a different version of the language. This is also important because many non-standard memory models refer to the C11 memory model, such as gcc's atomic intrinsic (also supported by Clang), MSVC intrinsic, and the Linux Kernel memory model.

Therefore I propose that we add N3607 to the list of papers that should apply to previous versions of the C standard.