

# Linear Congruent Engine Correction Proposal

Visual inspection of various features of the framework

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## 1 Linear Congruent Engine Corrections

The Linear congruent Engine does not set on the template parameters the number of bits the generated numbers are supposed to have. This in contrast with Mersenne Twister, subtract with carry and philox engines, which all have `std::size_t` as template parameter. This can lead to issues since the definition of a `linear_congruential_engine` with `std::uint_fast32_t` (as it is suggested in the `cppreference` page) now returns numbers that are implementation dependent. This will not affect the actual numbers generated, but it will affect the distributions where these numbers are used. This is because the numbers being returned by, for example, `std::uniform_real_distribution`, depends on the value of `std::linear_congruential_engine<>::max()`.

To exemplify this problem, I have written [the following test](#), where a linear congruential engine generates different uniform real distributed numbers, according to an implementation.