

Correction to The Lee–Moonshine Identity (Versions 1–7.0)

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Upon rigorous independent re-verification, the core expression proposed in previous versions as the Lee–Moonshine Identity,

$$\frac{744}{24 \cdot \phi^{-3}},$$

does **not** evaluate to 137.035999206. The correct value is

$$\frac{744}{24 \cdot \phi^{-3}} = \frac{62(4 + \sqrt{5})}{11} \approx 131.31810730249348.$$

Derivation (exact steps):

Let $\phi = \frac{1+\sqrt{5}}{2}$. Then $\phi^{-3} = \frac{4-\sqrt{5}}{2}$.

$$24 \cdot \phi^{-3} = 12(4 - \sqrt{5}) = 48 - 12\sqrt{5},$$

$$\frac{744}{48 - 12\sqrt{5}} = \frac{62}{4 - \sqrt{5}} = \frac{62(4 + \sqrt{5})}{11}.$$

All previous versions (v1.0 through v7.0) contain this arithmetic error in the numerical evaluation. The claimed correspondence to the inverse fine-structure constant $\alpha^{-1} \approx 137.035999206$ is therefore invalid. All subsequent extensions, numerical proximities to other physical constants (proton/electron ratio, weak mixing angle, top/Higgs ratio, etc.), and attractor claims were built on this incorrect base value and are also invalid.

What remains genuine: - The integer ratio $744/24 = 31$ (a Mersenne prime) is a real and interesting feature. - Closed forms in $Q(\sqrt{5})$ arise naturally from combinations of moonshine coefficients, lattice orbit counts, and golden-ratio powers. - The recursive FCC + ϕ^k -scaling structures produce visually striking quasicrystal-like objects.

The author sincerely apologizes for the error. It originated from an unchecked miscalculation in the initial numerical evaluation and was not identified despite extensive iteration. Future work will prioritize independent verification from first principles.

The existing versions remain publicly available for historical transparency. This correction supersedes all prior claims of physical correspondences.