

Addendum 280: Registry Burn-down III

The P07 rework and the P16 verdict

TOE Corpus

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Skill: gap-closure v1.1 — **Outcome:** Case B (one decision forced and filed; one claim formally refuted) — **Verifier:** `verify_P280.py` — all PASS

Abstract

The two quantified debts from A278, finished. *P07 rework.* The observation-operator spectrum is recomputed under the paper’s *claimed* boundary conditions ($\psi(0) = 0, \psi'(1) = 0$) and its *de facto* ones ($\psi(0) = \psi(1) = 0$), with the derived exponent $\beta = 6\mu_1/\mu_0 = 4.7600$ — no refit is permitted by the paper’s own no-free-parameters claim. Under the *de facto* Dirichlet conditions the lepton predictions are $m_\mu/m_e = 219.6$ (log-error 1.1%) and $m_\tau/m_e = 5825$ (log-error 6.3%), log-accuracy 96.3%, consistent with the published 94.8%. Under the *claimed* conditions the muon prediction collapses to 119.4 (log-error 10.3%, a tenfold degradation) while tau barely moves. Conclusion: **P07’s headline accuracy and its stated boundary physics cannot both be true.** Either the “observation is free at the universe boundary” interpretation is retracted and $\psi(1) = 0$ adopted (the mass data select Dirichlet: observation *vanishes* at the universe boundary), or the accuracy claim falls. The decision is physics, not bookkeeping; filed as **OI-280-1** with the data’s preference recorded. P007_1/P007_2 move to status *reworked*. *P16 verdict.* The Mersenne shell-preference claim is tested under four natural readings of its own definition (cumulative S_n as stated; per-prime $p\kappa$; modular form; exponent variant). All four fail: best counts 2/10 against claimed 14/19, with means at or near the uniform null. One forensic note: the per-prime reading reproduces the claimed *mean* (0.193 vs 0.187) within 3% while its counts still fail — suggesting the published table mixed readings or thresholds. Under every reading the headline is unsupported: **P016.3 is the corpus’s first formally refuted claim** (status *refuted*). Honest accounting: refutation of a canon headline by the canon’s own registry discipline is the system working, not failing. Registry after this addendum: 11 retired, 1 superseded, 1 scope, 2 reworked, 1 refuted, 2 confirmed-load-bearing, 44 unreviewed-or-open.

1 The P07 Rework

Proposition 1.1 (Spectrum and predictions under both boundary conditions). *With $\hat{O} = -d^2/dx^2 + \rho'(x)^2/2\mu_0^2 + E_{\text{self}}x^2(1-x)^2$, $N = 1000$, and the derived $\beta = 6\mu_1/\mu_0 = 4.7600$:*

<i>BCs</i>	$\lambda_{1,2,3}$	m_μ/m_e (206.77)	m_τ/m_e (3477.4)	log-acc
<i>de facto</i> (DD)	16.51, 51.24, 102.02	219.6 (1.1%)	5825 (6.3%)	96.3%
<i>claimed</i> (DN)	15.73, 42.95, 79.18	119.4 (10.3%)	2196 (5.6%)	92.0%

(Errors are log-space relative, the metric consistent with P07’s published 94.8%.) The muon prediction degrades tenfold under the paper’s own claimed boundary conditions, and β is derived, so no refit can absorb the change.

Remark 1.2 (The forced decision — OI-280-1). *The accuracy claim and the boundary interpretation are incompatible. The mass data select the Dirichlet condition $\psi(1) = 0$: observation vanishes at the universe boundary rather than being “free” there — which is, note, the more natural reading of the corpus’s own edge layer (the boundary is where observation runs out, P04’s edge fraction). But adopting it requires retracting P07’s stated interpretation, and that retraction is a physics decision the canon must make explicitly, not a patch an addendum may apply silently (Butlerian line). **OI-280-1**: derive the boundary condition of the observation operator from corpus primitives; the data’s preference (DD) is recorded, the prose’s claim (DN) is quantified as untenable with the published accuracy.*

2 The P16 Verdict

Proposition 2.1 (Refutation under all natural readings). *For the 51 known Mersenne prime exponents, with $\kappa = \alpha^{5/4}$, the counts ($\# d_n < 0.01$, $\# d_n < 0.05$, $\overline{d_n}$):*

reading	< 0.01	< 0.05	mean
cumulative $S_n = \sum p_i \kappa$ (as stated)	1	9	0.221
per-prime $p\kappa$	2	10	0.193
modular $p \bmod \kappa^{-1}$	2	10	0.193
exponent variant $p\kappa^{4/5}$	1	9	0.261
claimed (P16 Table)	14	19	0.187
uniform null	≈ 1.0	≈ 5.1	0.25

No reading reproduces the claimed counts; the strongest excess (10 vs 5.1 expected at the 0.05 threshold) has $p \approx 0.03$ before any look-elsewhere correction across readings and thresholds, below the corpus bar. Forensic note: the per-prime mean matches the claimed 0.187 within 3%, suggesting the published table mixed a per-prime mean with counts from an unstated computation. The headline claim — Mersenne exponents prefer integer shells — is refuted as stated. P16’s downstream uses (the “3 measurements of κ ” analogy table in P07 §2) inherit a caveat, not a collapse: nothing else in the corpus cites the shell counts quantitatively.

Remark 2.2 (On refuting one’s own canon). *This is the registry discipline functioning as designed: a claim was recorded, recomputed from its own definition, scanned across charitable readings, and refused. A corpus that can only confirm itself measures nothing (A272’s never-empty corollary, applied to the corpus itself: a school whose students never stall has stopped measuring). The refutation is filed with the same verifier rigor as the cycle’s theorems.*

Registry. P007_1, P007_2 $\rightarrow$ reworked (OI-280-1 pending); P016_3 $\rightarrow$ refuted. Totals: 11 retired, 1 superseded, 1 scope, 2 reworked, 1 refuted, 2 confirmed-load-bearing (P000_1.c, P027_3.c — the α -comma and the mass-hierarchy constant, both with OIs), 44 unreviewed-or-open. The burn-down run (A277 registry $\rightarrow$ A278 stages 1–2 $\rightarrow$ A279 stage 3 $\rightarrow$ this addendum) closes.

Verifier. `verify_P280.py`: both spectra and all four predictions with log-errors; the β derivation; the tenfold muon degradation; all four P16 readings with counts and means; the uniform-null comparison; registry regeneration and totals. All PASS.