

Addendum 321: The Framing Audit

The selection-rule magnitude gap is an artifact of an excluded functional; the target is the density's own Taylor coefficients

TOE Corpus

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Skill: gap-closure v1.1 — **Outcome:** FRAMING-DRIFT (framing audit; the eighteen-probe overlap-diagonal arc was computing a functional the corpus excluded) — **Addresses:** OI-287-1 framing; A296 — **Verifier:** `verify_P321.py` — all PASS

Abstract

Since A296 and A299 the selection rule OI-287-1 has been operationalized as an overlap-diagonal functional, $B[n] = \langle \psi_n | c_k \pi^k x^k | \psi_n \rangle / \lambda_n$, with the question whether B reproduces the target $(c_1, c_2, c_3) = (2, 3, 16)$, normalized $(1, 1.5, 8)$. Eighteen probes across seven arenas have established a sharp pattern: realizations that fail to distinguish the three families undershoot the μ entry to between 1.22 and 1.34; realizations that distinguish them overshoot to between 2.3 and 6.28; the target $\mu = 1.5$ lies in a gap that no arena reaches. This addendum re-grounds the framing against the corpus text and finds that the overlap-diagonal is not the object the corpus names. The target $(2, 3, 16)$ are the Taylor coefficients of the density, $c_k = \rho^{(k)}(0)/(\pi^k k!)$, established in A296. The corpus states the family-to-coefficient relationship as a lepton mass correction law, $\beta_n = 6\mu_1/\mu_0 - c_n \alpha^{1/4}/\lambda_1$, accurate to 10^{-4} on both mass ratios (A287), not as an overlap expectation value. The overlap-diagonal is the “bare Taylor probe” that A296 (Third exclusion) and A297 (position moments) both excluded; A299 revived it as the strongest lead, and the lead was carried forward without re-examination. The corpus-faithful reading of “family n draws coefficient n ” is the direct coefficient readout, which equals $(1, 1.5, 8)$ by definition. The magnitude gap is an artifact of matching a functional the corpus had already set aside. The verdict is FRAMING-DRIFT, and it redirects the open frontier of OI-287-1.

1 The Origin of the Target and the Mandated Functional

Proposition 1.1 (The target is the density's own coefficients; the rule is a mass law). *Write $\rho(x) = 16\pi^3 x^3 + 3\pi^2 x^2 + 2\pi x$, so that $\rho'(x) = 48\pi^3 x^2 + 6\pi^2 x + 2\pi$ integrates to ρ with coefficients $(2, 3, 16)$ in π^k units at degrees 1, 2, 3. These coefficients are the Taylor data of ρ at the center, $c_k = \rho^{(k)}(0)/(\pi^k k!) = (2, 3, 16)$, which is the reformulation of the selection rule in A296: charged-lepton family n draws the degree- n coefficient of ρ . The target $(2, 3, 16)$, normalized $(1, 1.5, 8)$, is therefore literally the density's own defining data, not a quantity to be reconstructed from a separate functional. The corpus states the family-to-coefficient relationship once, in A287: the lepton mass correction law $m_n/m_e = (\lambda_n/\lambda_1)^{\beta_n}$ with $\beta_n = 6\mu_1/\mu_0 - c_n \alpha^{1/4}/\lambda_1$, which reproduces m_μ/m_e and m_τ/m_e to 10^{-4} with the c_n entering as the integer coefficients of ρ . The relationship is a statement about lepton masses through the coefficients read as integers, not about an overlap expectation value of any operator. The moments $\mu_n = \int_0^1 x^n \rho dx$, which the corpus does use for the mass hierarchy, form a monotone-decreasing sequence $(\mu_0, \mu_1, \mu_2, \mu_3) = (137.04, 108.72, 90.18, 77.06)$ with $\mu_0 = \alpha^{-1}$; their ratios are not $(2, 3, 16)$ and were never claimed to be. The coefficients and the moments are distinct uses of ρ , and the target lives in the former.*

2 The Drift

Remark 2.1 (The overlap-diagonal was excluded, then carried forward). *The functional that the eighteen-probe arc has been testing, $B[n] = \langle \psi_n | c_k \pi^k x^k | \psi_n \rangle / \lambda_n$, is precisely the diagonal Taylor probe that A296 introduced as a candidate mechanism and excluded in the same addendum: its third proposition records that the diagonal coupling of level n to its own monomial falls short of the required shifts by factors 32 and 42, and is excluded on both scale and shape. A297 then excluded the related position-moment reading, finding the normalized diagonal ratios $(1, 0.74, 0.59)$ running opposite to the target. A299 reintroduced the overlap-diagonal as “the strongest lead the selection rule has”, reporting the normalized diagonal $(1, 1.12, 7.50)$ at $L_2 = 0.63$, and the subsequent arc (A300 through A320) inherited that lead as the object to be repaired, asking across seven arenas what factor lifts the μ entry from 1.12 to 1.5. The present audit recomputes the overlap-diagonal and confirms $(1, 1.12, 7.50)$ at $L_2 = 0.63$ on the production eigenvalues $(16.51, 51.24, 102.02)$, in agreement with A299. The corpus-faithful object, by contrast, is the direct coefficient readout $(c_1, c_2, c_3)/c_1$, which equals $(1, 1.5, 8)$ to machine precision because the coefficients are the target. The verdict is FRAMING-DRIFT: the magnitude gap that seven arenas could not close is an artifact of matching an overlap expectation value the corpus had set aside, not a property of the physics. The redirected frontier of OI-287-1 is not “what factor lifts μ to 1.5” but the original A287 and A296 question, why the mass correction law assigns level n the degree- n coefficient of ρ , with the coefficients read as the integers they are. The eighteen-probe arena search retains value as a thorough exclusion of the overlap-diagonal across radial, measure, fiber, Dirac, boundary, and coupled realizations, but it is an exclusion of the wrong object, and the open problem stands where A287 and A296 left it.*

Status. OI-287-1 remains open, and its form reverts to the A296 statement: derive why charged-lepton family n draws the degree- n Taylor coefficient of ρ in the mass correction law of A287. The overlap-diagonal operationalization of A299 is withdrawn as the object of the open problem; it is recorded as an excluded functional, consistent with A296 and A297. No published number changes; the lepton law and its 10^{-4} accuracy (A287) are untouched.

Verifier. `verify_P321.py`: recomputes the Taylor coefficients $(2, 3, 16)$ and the antiderivative arithmetic; the direct coefficient readout against $(1, 1.5, 8)$; the moments μ_n with $\mu_0 = \alpha^{-1}$ and their monotone- decreasing ratios; the production eigenvalues and the overlap-diagonal $(1, 1.12, 7.50)$ at $L_2 = 0.63$; and the defining FRAMING-DRIFT condition, that the coefficient readout matches the target at $L_2 = 0$ while the overlap-diagonal misses it. Eight checks, all PASS.