

One Law, Three Descents: the Same Six Steps in Quantum Mechanics, Gravity and Field Theory

One derivation, run three times. The rows are the six steps every descent takes; the columns are quantum mechanics, general relativity and quantum field theory. Read across a row to see one step performed on three different objects; read down a column to follow a single derivation end to end. Each cell names the theorem that carries that step, so a reader who doubts a particular move can go straight to it. Row 1 is the point of the table: the measurement problem (1926–), the unification problem (1915–) and the Lagrangian-ansatz problem (1954–) are three places where twentieth-century physics ran out of derivation and posted a postulate instead. Row 6 is where the claim is exposed — one pre-declared falsifier per column. In full: Table 4, p. 76.

Step	QM (Part III)	GR (Part IV)	QFT (Part V)
1. The century-old question	What is measurement, and why these postulates?	Why this action, and why is gravity unified with nothing?	Why this Lagrangian, and why the anomaly miracles?
2. The boundary object	The QM-restricted boundary algebra and its GNS space (T7.1)	The metric zero mode of the bulk (T8.1)	The field zero modes and the KK tower (T9.1)
3. The law descends	GKLS $\rightarrow$ von Neumann $\rightarrow$ Schrödinger in the closed limit (T7.2)	6D Einstein–Hilbert $\rightarrow$ 4D Einstein–Hilbert, with M_{Pl} computed (T8.1–T8.2)	Heavy-mode integration $\rightarrow$ $S_{4,\text{eff}}$ and $Z_4[J]$ (T9.2–T9.3)
4. The inherited structure	Born rule and Lüders update from CPTP completion (T7.3–T7.4)	Conservation as Ward identity; the modified Einstein equation (T8.3–T8.4)	BRST and Slavnov–Taylor as bulk inheritance (T9.4–T9.5)
5. The puzzle dissolved	Decoherence, einselection, Bell violation (T7.5–T7.7)	The cosmological constant reframed; the hierarchy derived (T8.5, T8.7)	Anomaly cancellation as theorem; four conserved currents (T9.6–T9.7)
6. The falsifier	Tsirelson-saturating boundary correlations (T7.7)	The modified TOV shift in the neutron-star mass–radius diagram (T8.6)	The M_{lock} cluster; exact proton stability (T9.1, T9.8)