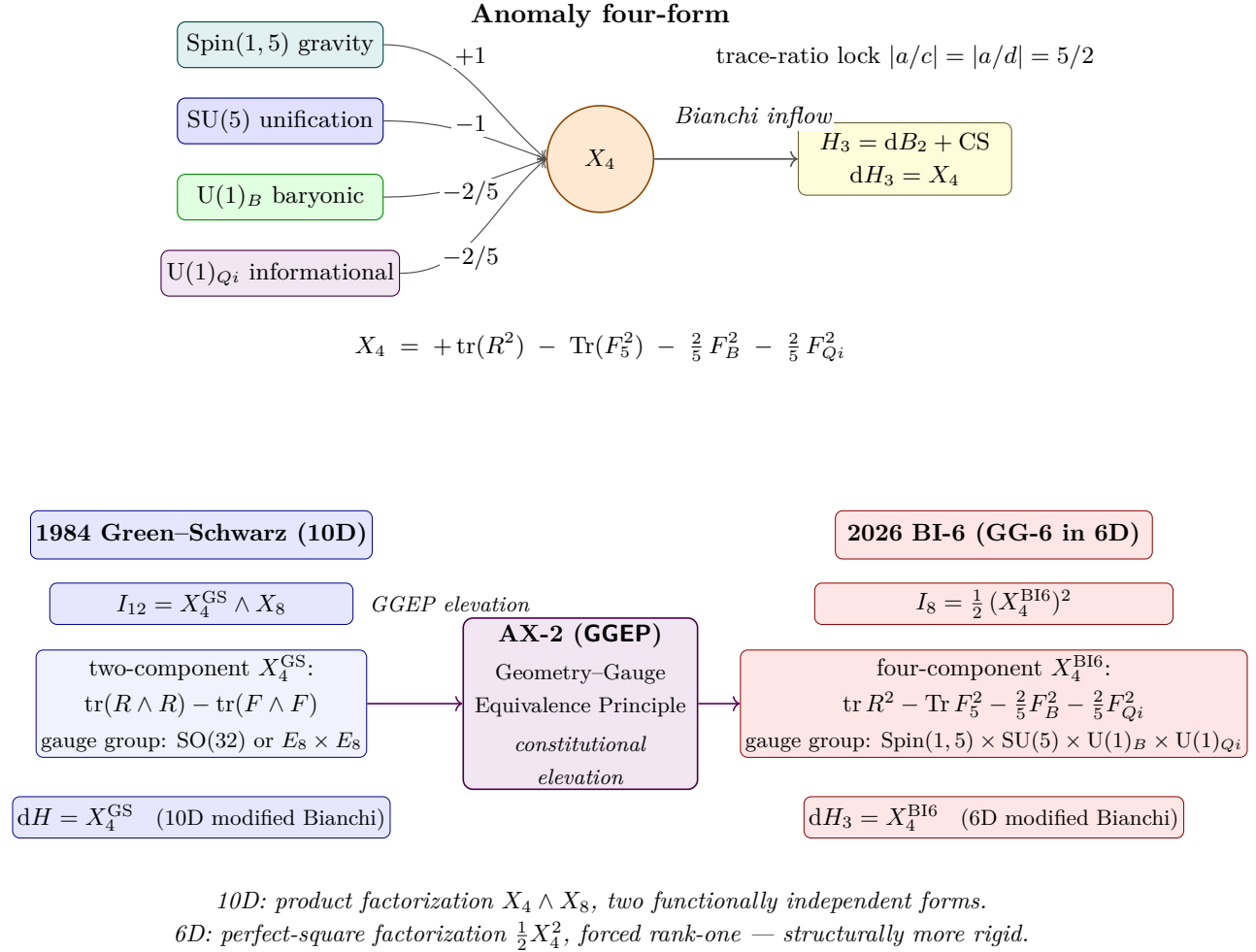


Four Curvature Squares, One Closed Form — and the 1984 Mechanism Raised to an Axiom



What the four components are, and where they came from. *Above:* the bulk gauge–gravity group $\text{Spin}(1, 5) \times \text{SU}(5) \times \text{U}(1)_B \times \text{U}(1)_{Q_i}$ contributes four distinct curvature-squared four-forms, which combine with the OGN-5-locked coefficients $(+1, -1, -2/5, -2/5)$ into the single closed gauge-invariant X_4 ; the trace-ratio lock $|a/c| = |a/d| = 5/2$ pins the Abelian fraction, and the modified Bianchi identity $dH_3 = X_4$ closes the whole inflow through one tensor sector. *Below:* the same object read against the mechanism it generalizes. Green and Schwarz pinned a *two-component* pattern in ten dimensions in 1984, as a technical refinement realized in a specific model; BI-6 is the four-component version, and what GG-Theory adds is the axiom – AX-2 (GGEP) – that raises the move from a refinement to a requirement any candidate theory must meet. The 10D pattern admits two functionally independent forms; the 6D pattern is rank-one by perfect-square forcing, and so is the more rigid of the two. Both panels appear again at full size, with their proofs, as Figure 4 in Part II and Figure 7 in Part IV.