

SDT Ruleset - Permitted Inputs and Prohibitions

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SDT Constitutional Ruleset

The Six Irreducible Operators

(1) Continuous throughput

$$\Phi = N\varepsilon$$

(2) Boundary event

$$\varepsilon \rightarrow (\varepsilon_d, \varepsilon_t, \varepsilon_a)$$

(3) Traction condition

$$\tau = \frac{\varepsilon_d}{\varepsilon} = \frac{1}{3}$$

Derived locally from $\Pi_{ij} = (P_{\text{conv}}/3)\delta_{ij}$. The normal projection of an isotropic stress tensor in 3D equals $1/d$. This is geometry, not tuning.

(4) Wake formation

$$\mathcal{W} = \text{anisotropic residue of non-traction throughput}$$

Multipole expansion: $\ell = 1 \rightarrow \text{electric}$, $\ell = 2 \rightarrow \text{magnetic}$, $\ell \geq 3 \rightarrow \text{structure}$.

(5) Propagation law

$$\Delta\theta \propto \nabla\mathcal{W}$$

One mechanism: straight line ($\nabla\mathcal{W} = 0$), refraction (smooth gradient), scattering (stochastic), lensing (large-scale).

(6) Persistence constraint

$$v_T^2 + v_P^2 + v_C^2 + v_t^2 = c^2$$

The movement budget. At rest, three orthogonal modes share c^2 .

#	Axiom	Statement
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Axioms (9)

#	Axiom	Statement
R1	Spaton lattice	Space is a gap-free, contact-only relay medium
R2	Nearest-neighbour	Transmission is nearest-neighbour only at rate $c = \ell_P/t_P$
R3	Phase loading	Every spaton carries deformation content ε
R4	Shell structure	The lattice has $N = R_{\text{CMB}}/\ell_P$ radial shells
R5	Omnidirectional release	At the Clearing, all content was released isotropically
R6	Shell cancellation	Convergent arrival from shell i preserves $\Phi = N\varepsilon$
M1	Exclusion	Matter is a persistent displacement of spatons
M2	Circulation	Displaced spatons circulate at speed $v_{\text{circ}} \leq c$
M3	Budget	$v_{\text{circ}}^2 + v^2 = c^2$ — total velocity is always c

Theorems (17)

#	Theorem	Result
T1	Shell cancellation identity	Inner shells cancel $\rightarrow$ only N contributes
T2	Convergent throughput	$\Phi = N\varepsilon, P_{\text{conv}} = \Phi/\ell_P^3$
T3	Occlusion force	$F = (\pi/4)P_{\text{eff}}R_1^2R_2^2/r^2$
T4	Force unification	Same mechanism: Coulomb, gravity, nuclear
T5	Inertial mass	$m = \Phi V_{\text{disp}}/(3\ell_P^3c^2)$
T6	Equivalence principle	$m_{\text{inert}} = m_{\text{grav}}$ (same V_{disp})
T7	Traction	$\tau = 1/3$ from isotropic tensor projection
T8	Charge quantisation	$R_{\text{charge}} = \sqrt{R_p r_e}$
T9	Coulomb identity	$k_e e^2 = \alpha \hbar c$
T10	Movement budget	$v_{\text{circ}}^2 + v^2 = c^2$
T11	Time dilation	$d\tau/dt = \sqrt{1 - v^2/c^2}$
T12	Length contraction	$L = L_0/\gamma$
T13	Rest energy	$E_0 = mc^2$
T14	Energy-momentum	$E^2 = (pc)^2 + (mc^2)^2$
T15	Photon limit	$v_{\text{circ}} = 0 \Rightarrow v = c, m = 0$
T16	Gravitational dilation	$d\tau/dt = \sqrt{1 - zR/r}$
T17	c-boundary	$\beth = R/k^2$: where orbital speed = c

Prohibitions

The following are **not permitted** in any SDT derivation: - Quarks, gluons, virtual particles - G or M as fundamental constants - Dark matter, dark energy - Probabilistic wavefunction collapse - Fields as ontological primitives - Any constant not derivable from $\{\ell_P, c, \hbar, k_B, T_{\text{CMB}}, \alpha, m_e, m_p\}$

Certification Labels

Label	Meaning
DERIVED	Computed from axioms, no external input beyond CODATA
COMPUTED	Deterministic calculation from the Law framework
CALIBRATED	One parameter fitted (must be documented)
OBSERVED	Validated against measurement, mechanism established
PENDING	Mechanism identified, computation not yet complete

Superseded by the two-axis audit spine. These single-axis labels conflate *provenance* (where the derivation started) with *correspondence* (what the result matches). New work SHALL carry both `provenance_status` and `correspondence_status` and the projected A–F class; see [05_Provenance_and_Correspondence.md](#). The legacy labels above remain valid as a coarse provenance hint and crosswalk.