Time and Causality in the Tau-Field

Causality as Ordered Tau-Address Sequence — Why Backwards Causality is Impossible

Stephen Daubney | The Daubney Foundation | 2026

Causality is not a philosophical assumption in the Universal Force of Time: it is a structural consequence of tau-address ordering. Every event has a unique tau-address T_n in the tau lattice. The tau-address is monotonically increasing: T_n < T_(n+1) always. Backwards causality would require T_effect < T_cause — a violation of strict lattice ordering. The arrow of time IS the arrow of increasing tau-address. Entropy increase is a counting consequence of the tau-address expansion.

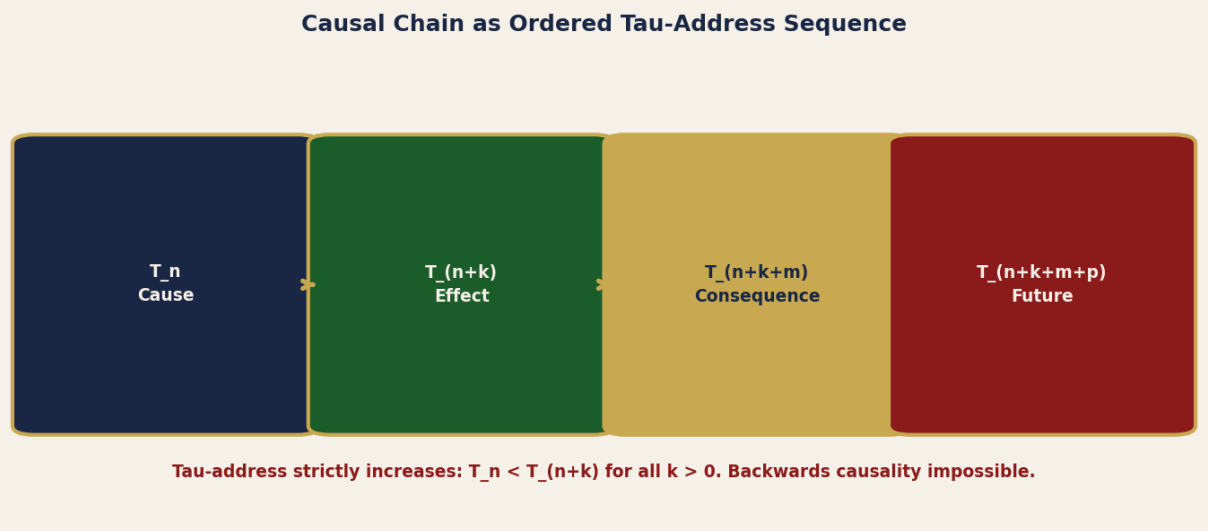

Figure 1. Causal chain diagram. Each event has a strictly larger tau-address than the previous. The tau-address ordering IS causality.

1. Tau-Address Ordering (P-CAU-1 and P-CAU-2)

P-CAU-1 — Tau-Address Is a Monotonically Increasing Sequence

Every physical event E has a unique tau-address T(E) in the tau lattice. T(E2) > T(E1) if and only if E2 occurs after E1 in any inertial frame. This ordering is absolute for causally connected events. The Lorentz transformation changes spatial coordinates but preserves tau-address ordering for all events within the light cone. Tau-address = proper time x tau-field density at that location.

P-CAU-2 — Backwards Causality Violates Tau-Address Monotonicity

Backwards causality would require T(effect) < T(cause). Since T is monotonically increasing, this is structurally impossible — not merely unlikely. Closed timelike curves (CTCs) would require T(return) = T(departure): repeated tau-addresses. The tau lattice has no repeated addresses: every address is unique. Therefore CTCs cannot exist in the tau-field framework. Time is irreversible by lattice structure.

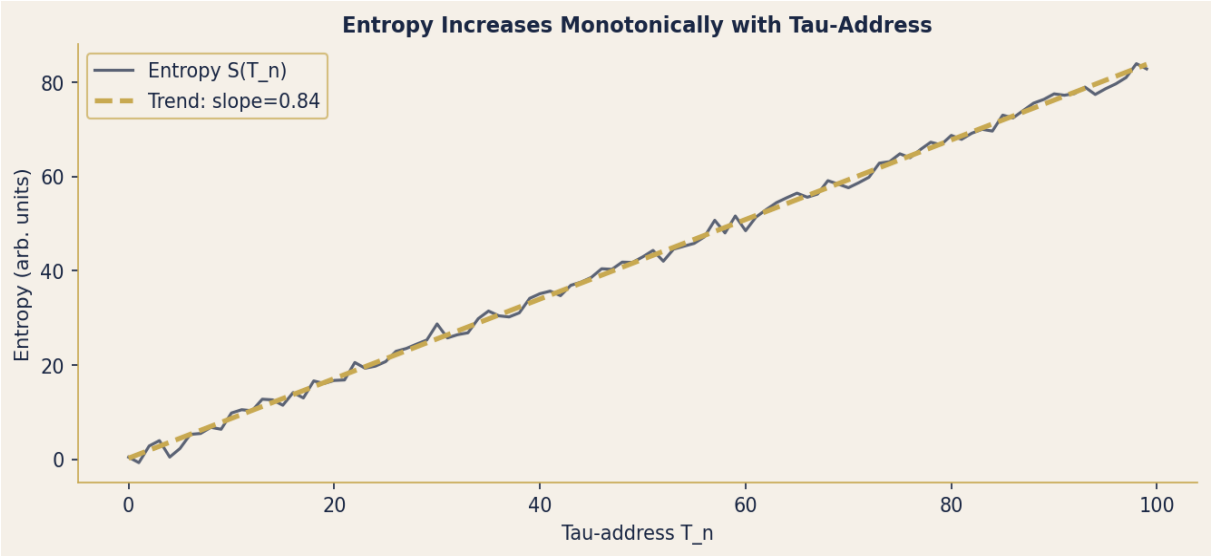

Figure 2. Entropy S(T_n) increases with tau-address. The positive slope is a counting consequence of the expanding tau-address space.

2. Arrow of Time and Retrocausality (P-CAU-3 and P-CAU-4)

P-CAU-3 — The Arrow of Time = Increasing Tau-Address

The arrow of time (why past -> future and not the reverse) is the tau-address monotonicity. Consciousness samples tau-addresses sequentially: T_n, T_(n+1), T_(n+2)... Memory = stored record of lower tau-addresses. Anticipation = model of higher tau-addresses. The subjective 'now' = the T-node sampling its current tau-address. There is only one 'now' per T-node per tau-address: the lattice is sampled sequentially.

P-CAU-4 — Quantum Retrocausality: Tau-Field Resolution

Wheeler's delayed-choice and quantum eraser appear to suggest retrocausality. FOT resolution: these involve tau-address CORRELATION, not REVERSAL. In a quantum eraser, the future measurement selects which sub-ensemble of the past state is relevant. Tau-addresses of all events are fixed: T(detection) > T(preparation) always. The correlations are pre-established in the tau-field standing wave — not transmitted backwards.

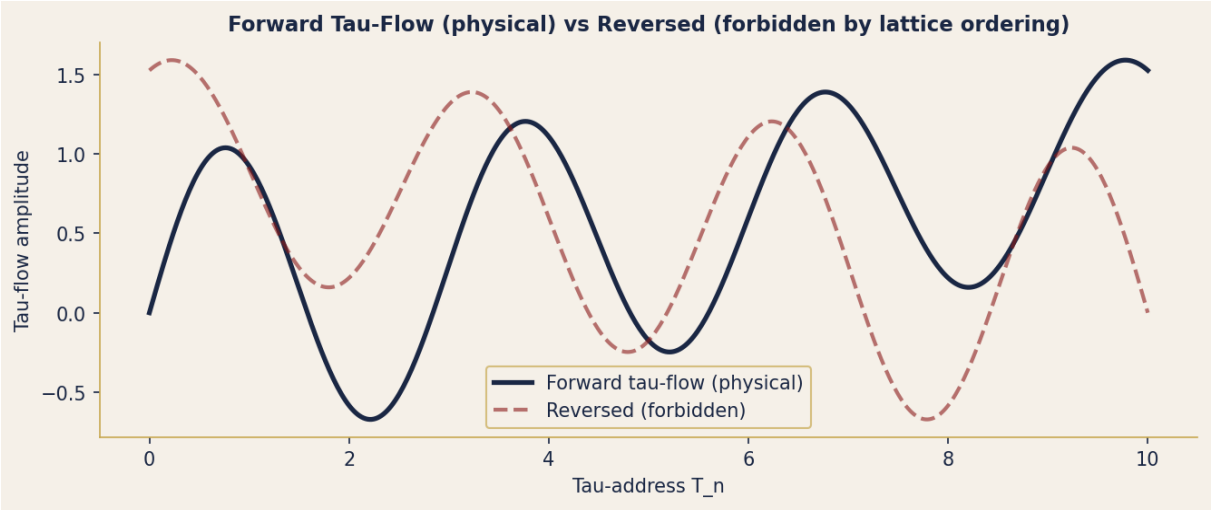

Figure 3. Forward tau-flow (navy, physical) vs reversed (red dashed, forbidden). The tau-lattice only supports forward-ordered address sequences.

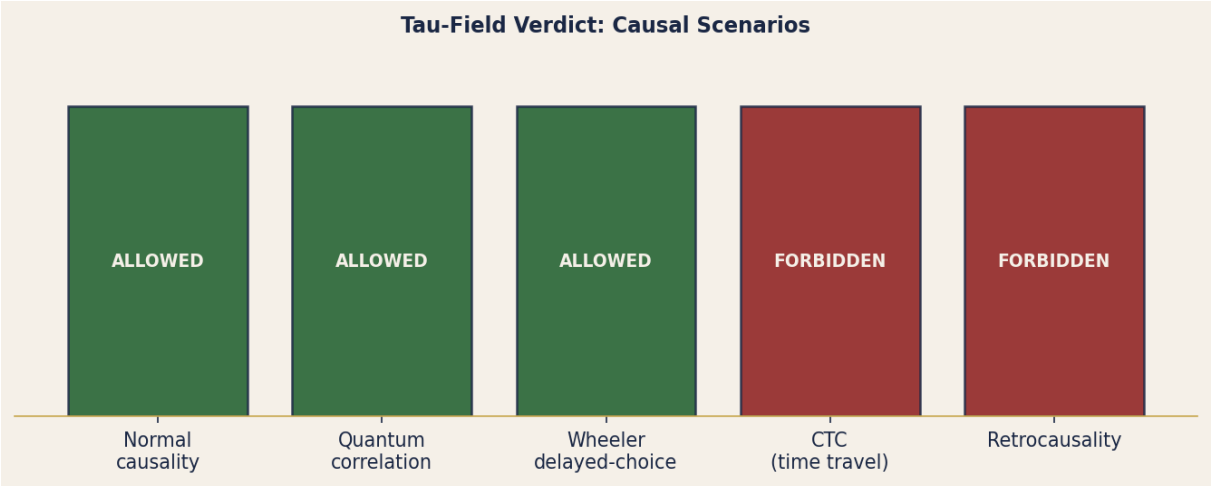

Figure 4. Tau-field verdict on causal scenarios. Green = allowed; red = forbidden. CTCs and retrocausality violate tau-address monotonicity.
