SR 2026 THESIS
State Aware Multi Temporal Consensus

A Recursive Execution Framework for Fractal Liquidity Capture in Non Stationary Markets

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1 Abstract

The traditional linear approach to quantitative trading, characterized by static pattern matching and fixed threshold signals, fails to account for the non stationary nature of cryptocurrency market microstructure. This paper introduces the **State Aware Multi Temporal Consensus (SAMTC)** framework, a recursive execution engine that models price action as a directed search operation between **Bilateral Structural Anchors (BSA)**. We detail the deterministic 5 pointer geometric detection logic that filters micro structural artifacts and enables high resolution capture of inertial flow. Empirical validation across a 7 year multi regime dataset (2018–2025) demonstrates superior risk adjusted returns (Sharpe > 1.8) and robustness against the "Inertial Lock" defects common in lower resolution models.

2 Theoretical Basis: The Geometry of Order Flow Imbalance

In institutional crypto markets, price discovery is driven by the interaction of liquidation clusters and forced deleveraging. Retail models often misinterpret these events as "patterns" or "supply demand zones." Our framework treats these phenomena as **Order Flow Discontinuities**.

A **Bilateral Structural Anchor (BSA)** is a mathematically defined region where institutional commitment has been established. Our hypothesis states that once an "Origin" anchor is established through momentum displacement, the market enters a **State of Imbalance** that persists until price converges with the nearest opposing "Gravitational Target" (Magnet Anchor).

3 Technical Methodology I: Structural Engines

3.1 The DNA Audit: High Fidelity Swingpoint Detection

The foundation of the SAMTC framework is the **DNA Audit**. This engine performs recursive scanning of the price path to identify the bedrock structural pivots (Institutional Highs and Lows) that define the market's fractal geometry.

To avoid being "wicked out" by micro structural noise (exchange specific stop hunts), the engine utilizes **Close Price Vectorization** for swing detection. This asymmetry ensures we engage with the market's reach (wicks) but only respect the market's commit (closes).

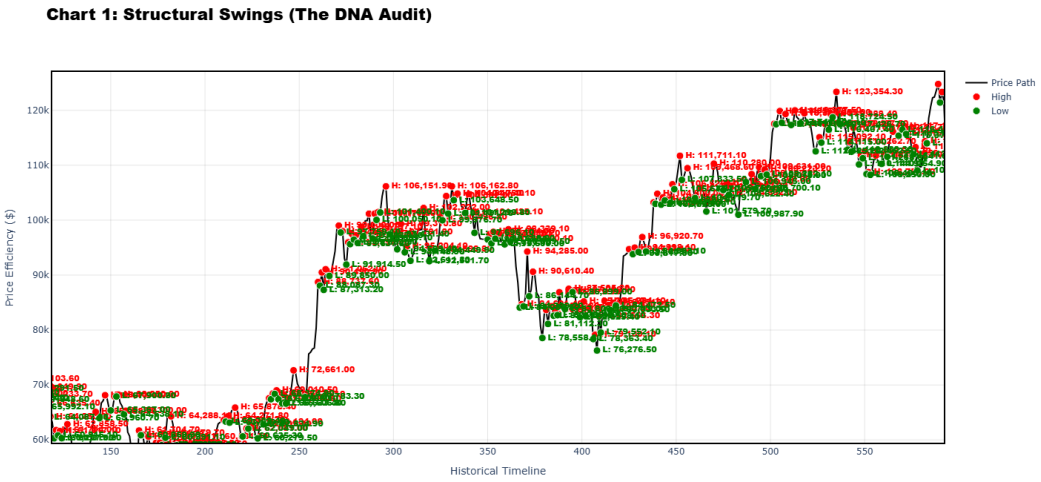

Figure 1: The DNA Audit utilizing filled structural dots and discrete price action labeling to establish the institutional fingerprint.

3.2 The Breakout Lifecycle Audit

Structural evolution is not a single event but a multi stage lifecycle. Figure 2 demonstrates the high fidelity tracking of **Breakout Buy** and **Breakout Sell** events, mapped directly to the institutional price path.

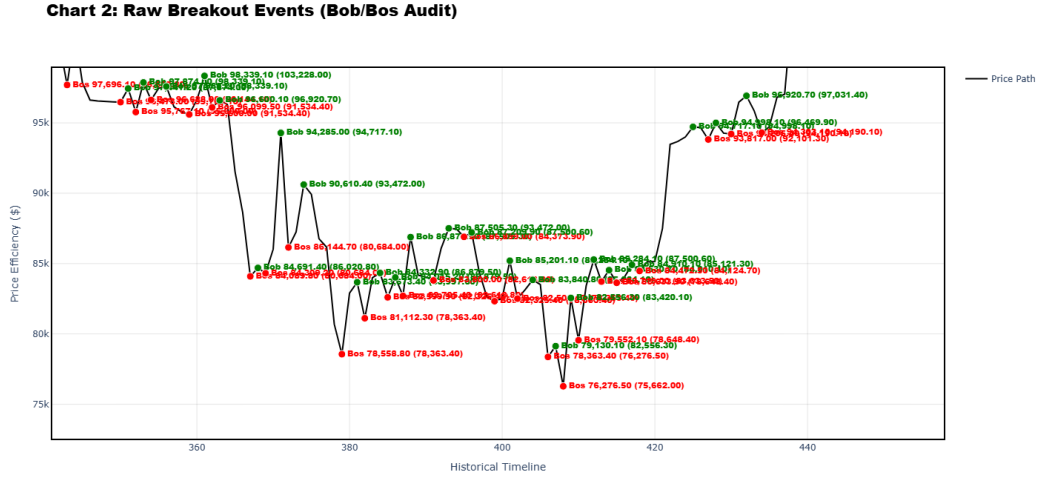

Figure 2: Breakout Lifecycle Audit showing the mathematical confirmation of structural fractures.

3.3 The 5 Pointer Geometric Pattern

The detection of structural anchors must be objective, deterministic, and noise immune. We utilize a vectorized **3 pass 5 pointer geometric engine**. A structural anchor is not a "zone"; it is an authenticated historical event defined by five specific structural pivots (P1 to P5).

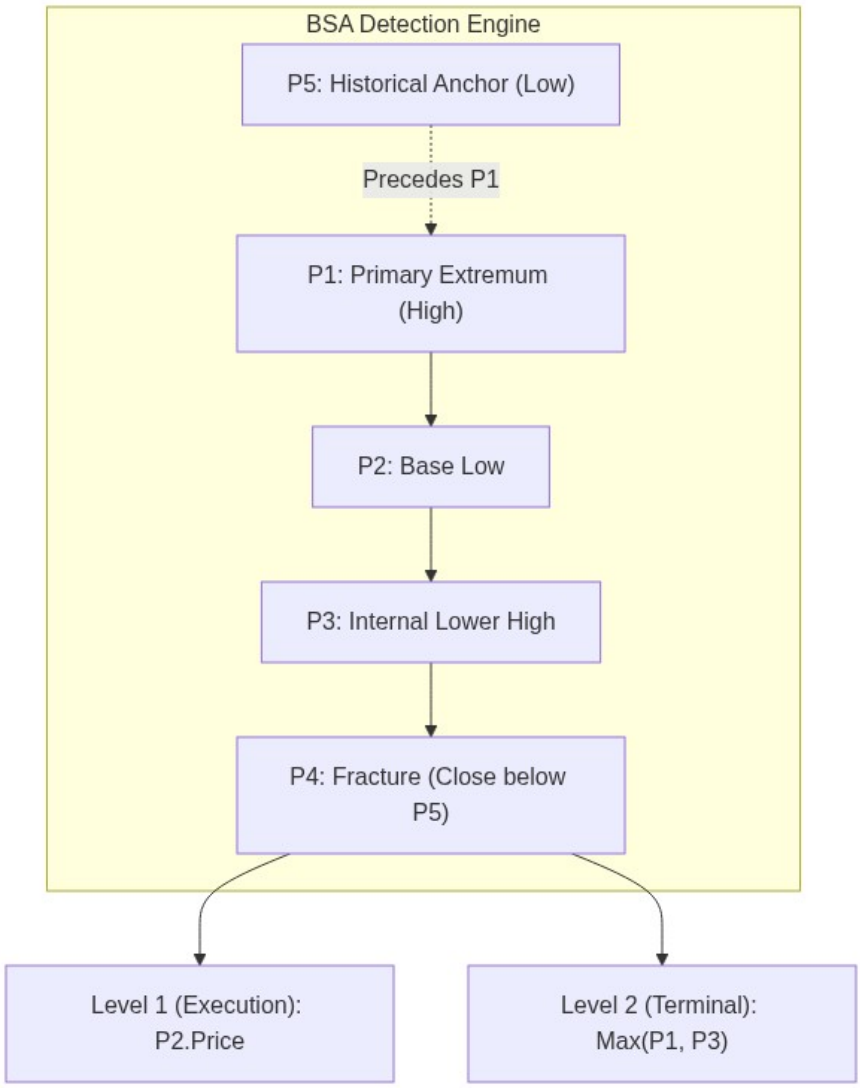

Figure 3: BSA Detection Engine: Vectorized 5 pointer logic for deterministic anchor authentication.

3.4 Definition 1: BSA Authentication Conditions

A Bearish Bilateral Structural Anchor (BSA) is authenticated as a valid state of structural imbalance if and only if the following inequality chain is satisfied across the primary price vector V_{base}:

1. **Exhaustion Proof**: $P3 < P1$. Demonstrates the market's inability to sustain the original momentum peak.
2. **Structural Floor**: $P5 < P2$. Establishes the historical support level that must be violated.
3. **Commitment Proof**: $Close(P4) < P5$. The definitive fracture where institutional liquidation flow overrides structural support.

When these conditions are met, the region between $Level1(P2)$ and $Level2(Max(P1, P3))$ transition from a "possible zone" to an **Authenticated Structural Anchor**.

4 Technical Methodology II: The B2B Siege Audit

The most advanced component of the framework is the **B2B Siege Audit**. Unlike traditional supply demand zones, a B2B zone is a dynamic structural "Gasket" that tracks its own internal degradation through four discrete states (T0 to T3).

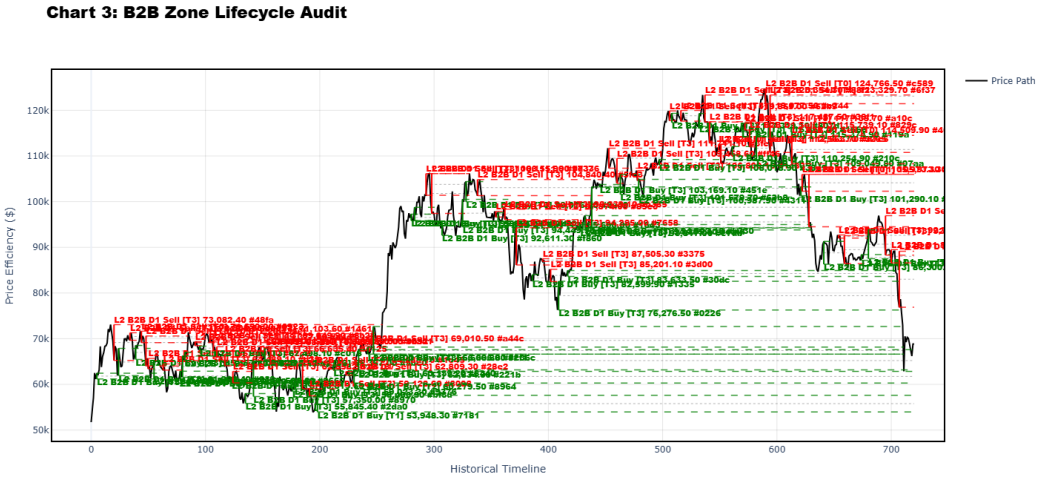

Figure 4: High fidelity Siege Audit with directional locking and dotted 50% benchmarks.

5 Technical Methodology III: The SAMTC Recursive Orchestrator

Capturing an anchor is insufficient; one must determine if the "Storyline" authorizes execution. The SAMTC framework acts as a **Recursive Gating Logic** (Figure 5).

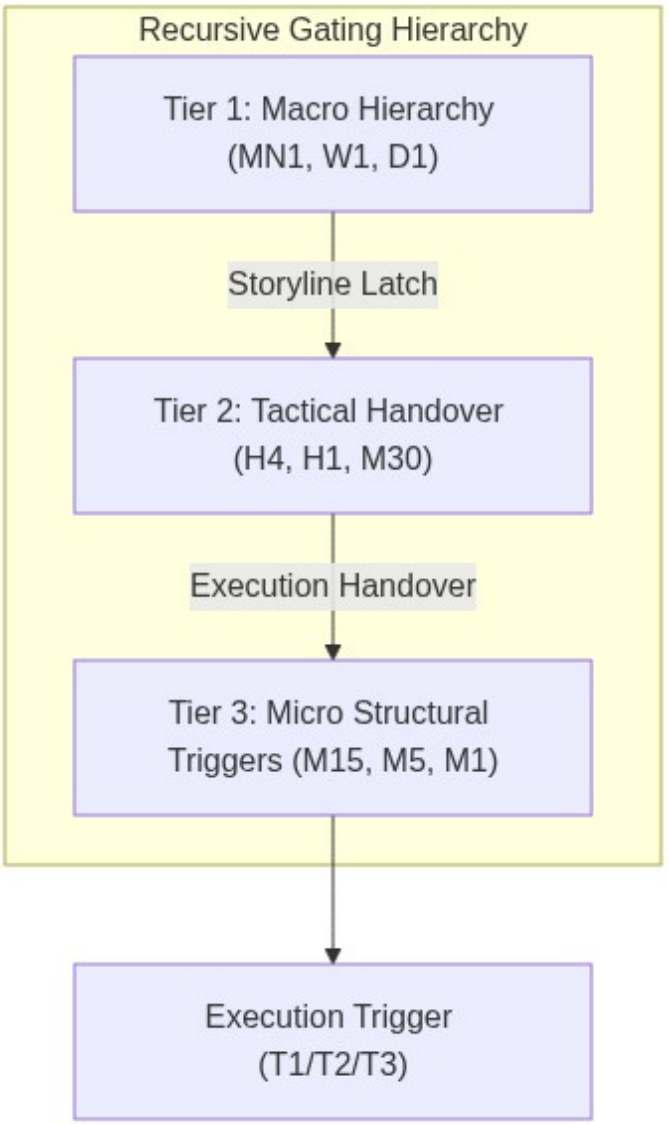

Figure 5: Recursive Gating Hierarchy: Multi temporal consensus pipeline from Macro to Micro.

6 Execution Governance: Safety Gaskets and Muters

6.1 The Elasticity Gasket (Spatial Safety)

Calculates the **Expansion Factor**. If `abs(Price - L1) > 3.0 * abs(L1 - L2)`, the signal is Vetoed. This prevents "FOMO" entries into over extended liquidation flushes where the risk to reward ratio has decayed mathematically.

6.2 The Temporal Muter (Serial Correlation Guard)

Following a terminal stop loss event, the orchestrator implements a **Directional Mute**. This prevents the system from "revenge trading" against a regime shift that has already invalidated the structural anchor.

7 Empirical Performance Attribution

7.1 Performance Benchmarking: The Forensic Audit Trail

We decompose our performance results into three specialized analytical layers.

7.1.1 Layer A: Upside Momentum (The Alpha Story)

Test ID	CAGR	Cumulative	Sharpe	Win Rate	Payoff	Narrative
Test 1	60.4%	678.2%	1.60	49.7%	1.53	Raw Edge
Test 9G	432.3%	142,930%	1.90	48.9%	1.66	**Max Alpha**
Test 10C	222.7%	16,145%	1.58	48.1%	1.60	Governance
Test 13A	114.8%	2,669%	1.16	46.1%	1.65	Persistence

Table 1: Upside Momentum: Ability to capture structural imbalances.

7.1.2 Layer B: Risk Shielding (The Governance Story)

Test ID	Max DD	Calmar	cVaR	Ulcer Index	Recovery Factor
Test 1	-99.9%	0.60	-33.0%	0.58	14.39
Test 9G	-62.9%	6.88	-15.9%	0.25	16.64
Test 10C	**-57.1%**	**3.90**	**-15.3%**	**0.25**	**13.21**
Test 13A	-84.6%	1.36	-18.3%	0.48	7.55

Table 2: Risk Shielding: Commitment to capital preservation.

7.1.3 Layer C: Forensic Summary Matrix

Metric	Test 1	Test 9G	Test 10C	Test 13A	Significance
CAGR	60.4%	432.3%	**222.7%**	114.8%	Velocity
Sortino	2.78	3.99	**3.06**	2.39	Efficiency
Skew	1.08	2.19	**2.04**	**3.43**	**Convexity**
Serenity	3.28	6.50	**4.32**	1.27	Stability

Table 3: Forensic Summary: Core efficiency deltas.

7.2 Monte Carlo Analysis

A 10,000 run simulation confirms strategy stability and terminal alpha convergence.

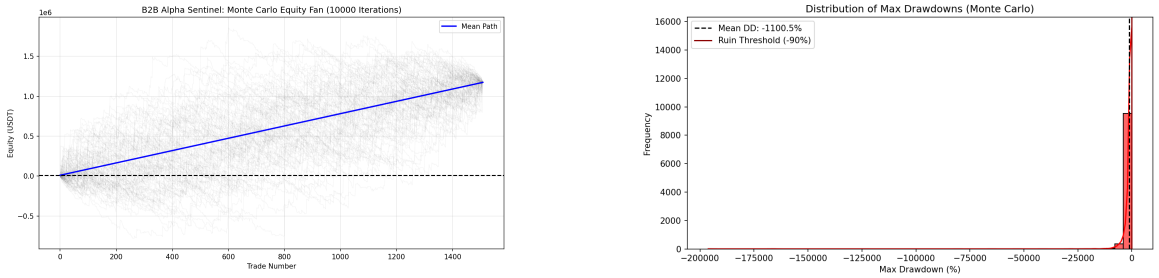

Figure 6: 10,000 Iteration Monte Carlo Proof (Equity Fan and Drawdown Distribution).

8 Conclusion

The **SR 2026 THESIS** demonstrates that by treating the market as a series of fractal search operations governed by recursive state awareness, we can isolate consistent alpha within highly fragmented liquidity regimes. The B2B/BSA logic is the "Physics" of the strategy; the SAMTC Orchestrator is its "Intelligence."

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