Growth Systems: A Coherence-Driven Multi-Equilibrium Field Theory (Extended Narrative Edition)

Abstract

This extended paper presents Growth Systems as a full narrative theory combining natural functions, propagating zero, and fluid simulation into a unified coherence-driven framework. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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1. Origins

The theory began with questions about balance, oscillation, and whether equilibrium is truly fixed. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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2. Natural Functions

Natural functions describe bounded behaviour under perturbation and introduce stability–tension ratios. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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3. Propagating Zero

Zero is redefined as a moving balance point rather than a fixed origin. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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4. Fluid Behaviour

Systems evolve through local interaction and transport of imbalance. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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5. Unification

The three theories converge into a single dynamical framework. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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6. Multi-Zero Fields

Equilibrium becomes distributed across multiple interacting centres. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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7. Coherence

Structure emerges from alignment of motion rather than position. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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8. Growth Systems

Growth is driven by coherence and constrained by entropy. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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9. Oscillation Primacy

Oscillation is the foundational state of the system. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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10. Cycles

The system evolves through oscillation, coherence, saturation, instability, and return. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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11. Mathematical Formulation

The governing equation formalises these interactions. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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12. Simulation

Particle simulations demonstrate emergent structure. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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13. Sound Mapping

Coherence maps naturally to harmonic generation. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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14. Visual Interpretation

The system can be visualised as a dynamic field of balance. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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15. Emergence

Order arises without central control. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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16. Stability

Stability is temporary and contextual. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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17. Instability

Instability drives renewal. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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18. Applications

Applications include music, simulation, and adaptive systems. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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19. Future Work

Further work includes PDE modelling and experimental validation. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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20. Conclusion

Growth Systems describe evolving balance through coherence. This section elaborates the concept in detail, providing intuition, mathematical grounding, and narrative continuity within the Growth Systems framework.

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Diagrams Section

Diagram 1: Conceptual illustration of Growth Systems dynamics (to be replaced with detailed visual figure).

Diagram 2: Conceptual illustration of Growth Systems dynamics (to be replaced with detailed visual figure).

Diagram 3: Conceptual illustration of Growth Systems dynamics (to be replaced with detailed visual figure).

Diagram 4: Conceptual illustration of Growth Systems dynamics (to be replaced with detailed visual figure).

Diagram 5: Conceptual illustration of Growth Systems dynamics (to be replaced with detailed visual figure).

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Diagram 9: Conceptual illustration of Growth Systems dynamics (to be replaced with detailed visual figure).

Diagram 10: Conceptual illustration of Growth Systems dynamics (to be replaced with detailed visual figure).