Appendices

Appendix A. Core Variables and Notation

This appendix consolidates the principal variables, structural relations, and notation used throughout Paper A-12. Its role is not to introduce new mechanisms, but to keep the cosmological argument terminologically disciplined and mathematically consistent with the broader CUWF framework.

A.1 Core State Regimes and Structural Domains

FWB:

Fundamental Wave Basin. The baseline wave-field regime in which fluctuations may exist without yet sustaining stable identity-bearing records.

Active Waves:

Coherent structured wave modes that have crossed the threshold of recordability and can sustain persistent identity across collapse/update cycles.

Wave Field:

The primitive relational substrate in which disturbances, coherence, compatibility, collapse, and recordability become definable. It is not a thing inside spacetime; spacetime description is derivative.

Universe Boundary:

A state boundary of coherence and recordability, not a geometric wall or literal edge of space.

Horizon:

A limit of coherent accessibility and recordability within the wave field; not the boundary of existence, but the boundary of sustained recordable structure.

Pre-Geometry Phase:

A regime reached after ultra-collapse in which time- and geometry-language lose operational applicability because stable identity and recordability are absent.

Near-Stillness:

A highly constrained low-expression regime in which macroscopic dynamics are strongly suppressed but latent configurational accessibility remains non-zero.

A.2 Core Dynamical Variables

DOF:

Degrees of Freedom. The number of accessible micro-configurations available to the wave field under current structural constraints. In A-12, DOF functions as configurational accessibility, not merely as an abstract count.

DOF_min:

A near-minimum accessibility regime. This is not identical to DOF = 0; residual fluctuation pathways remain structurally available.

DOF = 0:

A limiting idealization corresponding to total closure of accessible micro-configurations. In Paper A-12 this is treated as physically inaccessible at macro-cosmic scale.

Entropy:

The accumulated closure of incompatible configurations or the historical occupation/exhaustion of accessible compatibility space. Entropy is not identical with DOF.

Coherence:

The degree to which phase-relations among coupled modes remain mutually compatible and capable of sustaining stable identity-bearing structure.

Coherence Budget:

A finite structural capacity for sustained compatible organization. It may grow, stabilize, saturate, fragment, and fail across the Cosmic Breathing cycle.

Collapse Rate:

The effective rate at which compatible closure and record-forming reorganization occur. In A-12 this rate is state-dependent, not a universal constant.

Noise Floor:

The non-zero background irregularity of the FWB. This is structured rather than naively random and is one of the reasons permanent macro-stillness fails.

A.3 Collapse and Coherence-Architecture Terms

Collapse:

The elimination of incompatible phase-configurations and the locking of mutually compatible ones. Collapse is simultaneously phase-locking, information-locking, and record formation.

Super-Collapse:

A strong but partial collapse process in which coherence failure and reintegration occur in staged, layered, or regional form.

Ultra-Collapse:

A fully synchronized reintegrative collapse across the relevant field-domain, occurring when compatibility completion is reached in maximal synchrony.

Cosmic Memory:

The distributed residual record of completed collapses encoded in the compatibility network of the field itself. It is not a localized storage medium.

3-Phase Coherence:

Minimal nontrivial compatibility closure sufficient for fragile identity and record formation.

6-Phase Coherence:

Extended compatibility surface formed by interlocking triadic closures; associated with structural robustness.

9-Phase Coherence:

Compatibility completion within a coherence region or sub-domain; a closure point that is maximally internally coherent but also collapse-ready.

A.4 Core Structural Relations and Limit Statements

Collapse rate $\longrightarrow 0$ does not imply DOF accessibility $\longrightarrow 0$.

Maximum latent accessibility coincides with minimum active gradient at the near-stillness / zero-point boundary.

Entropy saturation and effective DOF compression are distinct but coupled conditions.

Stillness suppresses expression, not latent availability.

Constraint relaxation reopens dormant configurational access.

Re-excitation follows when non-zero asymmetry is dynamically amplified in a field with reopened accessibility.

3 ⟶ 6 ⟶ 9 describes coherence-depth progression, not size, rank, or ontological hierarchy.

Ultra-collapse is synchronized compatibility completion across the field, not simply collapse at larger geometric scale.

A.5 Recommended Language Discipline for A-12

Do not describe the universe boundary as a spatial wall unless explicitly contrasting CUWF with that picture.

Do not treat the Big Bang singularity as an ontological beginning inside CUWF; use threshold transition language instead.

Do not equate collapse with metric contraction by default.

Do not use “before” for pre-recordable regimes without clarifying that this is shorthand rather than literal temporal ordering.

Do not equate 3–6–9 with size, complexity rank, or mystical numerology.

Do not describe stillness as DOF = 0 unless the statement is explicitly marked as an inaccessible limiting case.

Appendix B. Suggested Equation / Relation Docking Points

The following compact relations are not intended to replace the CUWF core equation. They serve as docking statements indicating how the conceptual claims of Paper A-12 fit into a more formal CUWF treatment.

Cosmogenesis threshold: active structure emerges when coherence and compatibility exceed the recordability threshold.

Expansion condition: increasing DOF accessibility widens the set of realizable relational configurations.

Saturation condition: entropy accumulation progressively closes compatibility pathways, reducing effective reconfiguration freedom.

Boundary condition: collapse-rate may approach zero while latent accessibility remains non-zero.

Re-excitation condition: any non-zero asymmetry near the zero-point access boundary is dynamically amplifiable.

Breathing loop: accessibility opening ⟶ coherence growth ⟶ saturation ⟶ reintegrative collapse ⟶ near-stillness ⟶ re-excitation.