1. Introduction

1.1 The Challenge of Cosmology

Cosmology demands an explanation for the largest-scale behaviors of the universe: expansion, acceleration, large-scale structure, and cosmic horizons. In general relativity, these phenomena arise from the geometry of spacetime and the evolution of the scale factor. Expansion is treated as the stretching of space itself; acceleration is attributed to dark energy; structure formation requires cold dark matter; and cosmic horizons emerge from the global behavior of the metric.

The Event Density framework approaches these same phenomena from a different foundation. ED does not begin with geometry or a metric. It begins with **becoming**: the local rate at which micro-events occur. From this primitive, ED must explain why the universe expands, why the expansion accelerates, why structure forms, and why horizons appear. The challenge is not to reproduce the mathematics of cosmology but to provide a **deeper ontological account** of why cosmic behavior takes the form it does.

1.2 The ED Perspective

In ED, each region of the universe is characterized by its Event Density—the rate of becoming that governs the pace of internal processes. At cosmic scales, ED is smooth but not uniform. Small differences in ED accumulate across vast distances, producing **temporal tension**: differential becoming between distant regions.

Temporal tension is the ED analogue of cosmic expansion.
It is not the stretching of space.

It is the outward expression of ED mismatch across the universe.

As signals propagate across these gradients, participation becomes stretched, producing cosmological redshift. As ED gradients evolve over cosmic time, temporal tension increases, producing acceleration. As small ED variations amplify, large-scale structure emerges. And as ED gradients accumulate across cosmic distances, participation limits appear as cosmological horizons.

From this perspective, the universe's large-scale behavior is not geometric but **relational**, arising from the structure of becoming across cosmic scales.

1.3 Aim of the Paper

The aim of this paper is to develop the ED account of cosmology. We show that:

- cosmic expansion arises from temporal tension
- cosmological redshift is cumulative participation stretching

- acceleration reflects the steepening of ED gradients over time
- large-scale structure emerges from ED variations
- cosmic horizons are global decoupling surfaces
- early-universe behavior follows from ED steepening, not singularities
- FRW dynamics can be mapped onto ED gradients without assuming a metric as fundamental

By grounding cosmology in the structure of becoming, ED provides a unified, ontologically transparent account of the universe's large-scale behavior. This paper completes the conceptual arc begun in Papers 5–7 and prepares the ground for the ED account of quantum behavior in Paper 9.

2. The ED Field at Cosmic Scales

2.1 Smoothness and Variation

At local scales, the Event Density field is smooth and nearly uniform. This guarantees local Lorentz invariance and ensures that small regions behave as if they were embedded in flat spacetime. At cosmic scales, however, ED is not perfectly uniform. Small variations in the rate of becoming accumulate across vast distances, producing gentle but persistent **global ED gradients**.

These gradients are not imposed by geometry or matter distribution. They are intrinsic features of the ED field itself. Matter, radiation, and structure respond to these gradients rather than generating them. The universe's large-scale behavior is therefore not the result of spacetime curvature but the expression of **how becoming varies across cosmic distances**.

The ED field is smooth enough to produce large-scale homogeneity, yet varied enough to generate the observed cosmic web. This duality—smoothness at small scales, variation at large scales—is the foundation of ED cosmology.

2.2 Temporal Tension

Temporal tension is the ED analogue of cosmic expansion. It is the **differential rate of becoming** between distant regions. When two regions have slightly different ED values, their internal processes unfold at slightly different paces. Over cosmic distances, these small differences accumulate into a measurable effect: distant regions "pull ahead" or "lag behind" in becoming.

This differential becoming produces a structural pressure that manifests as **recession**. Regions with higher ED evolve more rapidly, and signals traveling from them into lower-ED regions are stretched. This stretching is not the expansion of space but the **expression of temporal tension** across the ED field.

Temporal tension is therefore the fundamental driver of cosmic expansion. It is not a force, not a geometric effect, and not a property of spacetime. It is the relational consequence of ED gradients across the universe.

2.3 ED and Cosmic Homogeneity

Despite its global variation, the ED field is remarkably smooth. This smoothness explains the large-scale homogeneity of the universe without requiring inflation or fine-tuning. Regions with similar ED values evolve at similar rates, maintaining coherence across vast distances.

At the same time, small ED variations are amplified over cosmic time. Regions with slightly higher ED evolve faster, deepening their ED advantage; regions with slightly lower ED evolve more slowly, deepening their ED deficit. This natural amplification mechanism seeds the formation of large-scale structure.

Thus, ED provides a unified explanation for two key cosmological observations:

- **Homogeneity:** ED is smooth at large scales.
- **Structure:** ED variations amplify over time.

The universe is uniform because ED is smooth, and structured because ED is not perfectly uniform. No additional fields, forces, or fine-tuned initial conditions are required.

3. Expansion as Temporal Tension

3.1 No “Expanding Space”

In standard cosmology, expansion is described as the stretching of spacetime itself. Distances increase not because objects move through space, but because the metric evolves. This geometric interpretation is powerful mathematically, but ontologically opaque. It raises difficult questions:

- What does it mean for space to stretch?
- What is expanding relative to what?
- Why should the metric evolve at all?

The Event Density framework offers a different foundation. ED does not treat space as a substance that can stretch or evolve. Instead, expansion is the **relational consequence of differential becoming** across cosmic scales. When distant regions of the universe have slightly different ED values, their internal processes unfold at slightly different rates. Over vast distances, these small differences accumulate into a measurable effect: **temporal tension**.

Expansion is not the stretching of space.

It is the outward expression of ED mismatch.

3.2 How Temporal Tension Drives Expansion

Temporal tension arises when two regions of the universe evolve at different rates of becoming. A region with higher ED “moves forward” in becoming more rapidly than a region with lower ED. When signals propagate between such regions, the mismatch in becoming produces **participation stretching**:

- signals from higher-ED regions are integrated more slowly by lower-ED regions
- the spacing between micro-events increases with distance
- the cumulative effect appears as recession

This recession is not motion through space.

It is the **perceptual consequence** of integrating signals across ED gradients.

The key insight is that temporal tension produces a **systematic, distance-dependent stretching** of participation. The farther a region is, the more ED mismatch accumulates, and the stronger the recession effect becomes. This naturally reproduces the observed expansion of the universe.

Expansion is therefore not a dynamical process of spacetime.

It is a relational process of becoming.

3.3 The Hubble Relation

The Hubble relation—the linear relationship between redshift and distance at small scales—emerges naturally from ED gradients. When ED varies smoothly across cosmic distances, the cumulative participation stretching increases proportionally with distance. This produces:

- a linear redshift–distance relation at small scales
- a smooth deviation from linearity at larger scales
- a natural explanation for why recession velocity increases with distance

In ED terms:

- **Hubble's law** is the first-order expression of temporal tension
- **cosmological redshift** is the cumulative stretching of participation
- **recession velocity** is the apparent effect of integrating signals across ED gradients

No expanding metric is required.
No scale factor is fundamental.

The Hubble relation is the observational signature of **global ED structure**.

4. Cosmological Redshift

4.1 Redshift Without Expanding Space

In standard cosmology, redshift is interpreted as a consequence of metric expansion: as space stretches, wavelengths stretch with it. This explanation is mathematically effective but ontologically opaque. It treats space as a substance capable of expansion and assigns physical behavior to the metric itself.

The Event Density framework offers a different account.

In ED, redshift arises from **participation stretching** across cosmic ED gradients. A signal is a sequence of micro-events emitted at the local rate of becoming. When that sequence travels across regions with different ED values, the receiving region must integrate those micro-events according to its own rate of becoming.

If the signal originates in a higher-ED region and travels into a lower-ED region, each micro-event is stretched across more of the receiving region's becoming. The result is a **decrease in observed frequency**—a redshift.

Cosmological redshift is therefore not the stretching of space.

It is the cumulative stretching of participation across ED gradients.

4.2 Distance Dependence

Because ED gradients accumulate across cosmic distances, the stretching of participation increases with distance. A signal traveling a short distance experiences only a small ED mismatch; a signal traveling across billions of light-years experiences a large cumulative mismatch.

This produces the observed distance dependence:

Linear redshift at small scales:

- When ED gradients are shallow and distances are modest, the cumulative stretching is proportional to distance. This reproduces the linear Hubble relation.

Curved redshift–distance relation at large scales:

- Over cosmological distances, ED gradients are no longer negligible. Their cumulative effect produces a smooth deviation from linearity, matching the observed curvature in the Hubble diagram.

Apparent recession velocities:

- The farther a region is, the more ED mismatch accumulates, and the stronger the apparent recession becomes. This is not motion through space but the perceptual consequence of integrating signals across ED gradients.

In ED, distance dependence is not a geometric effect.

It is a **relational effect** arising from the structure of becoming.

4.3 Comparison With GR

General relativity explains cosmological redshift through the evolution of the scale factor: as the universe expands, wavelengths stretch. ED explains the same phenomenon through the cumulative stretching of participation across ED gradients.

The two accounts differ in ontology but agree in observation:

GR:
Redshift = change in scale factor

- (metric expansion of space)

ED:
Redshift = cumulative participation stretching

- (temporal tension across ED gradients)

Both frameworks predict:

- linear redshift at small distances
- curvature at large distances
- apparent recession velocities
- acceleration when gradients steepen

But ED does so without invoking expanding space, scale factors, or geometric primitives. Redshift becomes a direct expression of **how becoming varies across the universe**, not a property of spacetime itself.

5. Cosmic Acceleration

5.1 ED Explanation of Acceleration

In standard cosmology, the acceleration of the universe's expansion is attributed to dark energy or a cosmological constant: a uniform energy density that drives spacetime to expand at an increasing rate. This explanation is mathematically effective but conceptually opaque. It requires introducing a new substance or parameter whose physical nature remains unclear.

The Event Density framework provides a different account.

Acceleration arises when **ED gradients steepen over cosmic time**.

As the universe evolves:

- regions with slightly higher ED continue to evolve faster
- regions with slightly lower ED continue to evolve more slowly
- the differential rate of becoming increases
- temporal tension grows

This steepening of ED gradients produces a **second-order effect**: not just recession, but *accelerating* recession. The acceleration is not a force and not a property of spacetime. It is the natural consequence of how becoming differentiates across cosmic scales.

Acceleration is therefore not driven by a new field.

It is driven by the **evolution of ED itself**.

5.2 No Dark Energy as a Substance

In ED, there is no need to posit dark energy as a physical substance or a vacuum energy density. The observed acceleration emerges from the relational structure of becoming:

- ED gradients steepen
- temporal tension increases
- participation stretching becomes more pronounced
- recession accelerates

This explanation avoids the conceptual difficulties of dark energy:

- no negative pressure
- no fine-tuned cosmological constant
- no unexplained vacuum energy
- no need to assign dynamical behavior to the metric

Acceleration is not an additional ingredient.

It is a **structural consequence** of ED evolution.

5.3 Mapping ED Acceleration to ΛCDM Behavior

Although ED rejects dark energy as a substance, it reproduces the observational behavior attributed to ΛCDM. The mapping works as follows:

- The Λ term in the Friedmann equations corresponds to the **rate at which ED gradients steepen**.
- The observed acceleration corresponds to the **second derivative of temporal tension**.
- The apparent “dark energy density” corresponds to the **global slope of the ED field**.

This mapping is descriptive, not ontological.

ED does not require a cosmological constant; it simply produces the same observational signatures.

Thus:

- **GR + ΛCDM:** acceleration arises from a cosmological constant.
- **ED:** acceleration arises from the evolving structure of becoming.

The two frameworks agree on what we observe.

They differ on what is fundamental.

5.4 Varying Expansion Rates as a Natural Consequence of ED

Because ED gradients evolve over cosmic time, the expansion rate of the universe is not fixed. As regions with slightly higher ED continue to evolve faster than their surroundings, the differential rate of becoming increases. This deepens temporal tension and amplifies participation stretching across cosmic distances. The result is a **time‑dependent expansion rate**: the universe expands more rapidly as ED gradients steepen. In ED, therefore, varying expansion rates are not anomalies requiring new fields or parameters; they are the expected, structural consequence of how becoming differentiates across the universe.

6. Large‑Scale Structure Formation

6.1 ED Gradients Seed Structure

In the Event Density framework, structure formation does not require exotic matter components or finely tuned initial conditions. It arises naturally from the way ED varies across cosmic scales. Even small differences in ED values lead to differential becoming:

- regions with slightly higher ED evolve faster
- regions with slightly lower ED evolve more slowly

Over cosmic time, these small differences amplify. Faster‑becoming regions accumulate more micro‑events, deepen their ED advantage, and begin to attract matter and radiation through participation asymmetries. Slower‑becoming regions fall behind, producing underdensities.

This amplification mechanism is the ED analogue of gravitational instability.

But instead of curvature driving collapse, **ED gradients drive differential becoming**, which in turn shapes matter distribution.

Structure formation is therefore not a separate process.

It is the natural expression of ED variation.

6.2 Filaments, Walls, and Voids

The cosmic web—filaments, walls, clusters, and vast voids—emerges from the geometry of ED gradients. Where ED gradients align, they produce channels of enhanced becoming. These channels act as attractors for matter and radiation, forming filaments and walls. Where ED gradients diverge or flatten, becoming slows, producing voids.

This yields a clean ED interpretation of the cosmic web:

- **Filaments:** regions where ED gradients converge, producing sustained differential becoming.
- **Walls:** extended surfaces where ED gradients align across large areas.
- **Clusters:** local maxima of ED where becoming is fastest.
- **Voids:** regions of minimal ED where becoming lags behind.

The large-scale structure of the universe is therefore a **map of the ED field**, not a consequence of dark matter halos or metric curvature.

Matter traces ED gradients because participation is strongest where becoming is fastest.

6.3 Comparison With GR + ΛCDM

In standard cosmology, large-scale structure formation requires:

- cold dark matter to seed gravitational wells
- metric curvature to guide collapse
- a cosmological constant to shape late-time behavior

ED reproduces the same observational outcomes without introducing new substances or geometric primitives. The mapping is straightforward:

- **Cold dark matter effects** correspond to **participation asymmetries** in ED gradients.
- **Gravitational collapse** corresponds to **differential becoming** amplifying ED variations.
- **Cosmic web geometry** corresponds to the **global structure of ED gradients**.

ED does not deny the observational successes of ΛCDM.

It explains them from a deeper ontological foundation.

In ED:

- structure forms because ED gradients amplify
- matter distribution reflects the geometry of becoming
- the cosmic web is the visible imprint of the ED field

This provides a unified, transparent account of large-scale structure without invoking dark matter as a particle or curvature as a primitive.

7. Cosmological Horizons

7.1 Particle Horizons

In standard cosmology, a particle horizon marks the maximum distance from which light could have reached an observer since the beginning of the universe. It is treated as a geometric boundary determined by the integral of the scale factor. This interpretation depends on the metric being fundamental.

In the Event Density framework, a particle horizon is not a geometric boundary.

It is a **participation boundary**.

A particle horizon marks the limit beyond which the cumulative ED mismatch becomes too great for micro-events to be integrated. Signals emitted from regions beyond this limit cannot be incorporated into the observer's becoming because:

- the ED gradient is too large
- participation bandwidth is too thin
- temporal tension has accumulated beyond the integration threshold

Thus, a particle horizon is the **global analogue of a participation limit**.
It is not a boundary in space.

It is a boundary in **relational becoming**.

7.2 Event Horizons

Event horizons in cosmology—such as those in accelerating universes—are also reinterpreted in ED terms. In GR, an event horizon is a geometric surface beyond which events cannot influence an observer. In ED, an event horizon is a **global decoupling surface**, exactly analogous to the local decoupling surfaces described in Paper 6.

An event horizon forms when:

- ED gradients steepen sufficiently
- temporal tension grows without bound
- participation between regions drops below the decoupling threshold

Beyond this threshold, micro-events from one region cannot be integrated by another. The horizon is not a geometric surface but a **failure of participation** across extreme ED mismatch.

This interpretation unifies black hole horizons (Paper 6) and cosmological horizons under a single principle:

horizons are ED decoupling surfaces.

7.3 Why Cosmic Horizons Are Inevitable

Cosmic horizons are not special features of particular cosmological models. They are **inevitable** in any universe with non-uniform ED. As ED gradients accumulate across cosmic distances, participation becomes increasingly strained. Eventually, the cumulative mismatch exceeds the integration capacity of the receiving region.

This inevitability follows directly from ED primitives:

- ED is smooth but not uniform
- gradients accumulate across distance
- participation bandwidth is finite
- temporal tension increases over time

Therefore:

- **Particle horizons** arise from finite cosmic time and cumulative ED mismatch.
- **Event horizons** arise from steepening ED gradients and long-term temporal tension.

Cosmic horizons are not geometric artifacts.

They are structural consequences of becoming.

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8. Early Universe Behavior

8.1 ED Near the Big Bang

In standard cosmology, the Big Bang is modeled as a singularity where density and curvature diverge. In ED, the early universe is not a singularity but a **high‑ED, fully coupled state**. Becoming is extremely rapid, ED gradients are minimal, and participation bandwidth is at its maximum. The universe is simple not because it is compressed, but because **every region participates with every other region with almost no resistance**.

This is the key distinction between the Big Bang and a black hole in ED terms:

- **Black holes:** maximal ED concentration, *minimal participation*, decoupling surfaces.
- **Early universe:** maximal ED production, *maximal participation*, no decoupling anywhere.

A black hole is uniform because nothing can enter or leave its ED-saturated interior.

The early universe is uniform because everything is in immediate mutual contact through high ED and strong participation.

There is no structure in the early universe not because it is crushed, but because **ED gradients have not yet emerged**. Without gradients, there is no differential becoming, no participation asymmetry, and therefore no seeds for structure.

The Big Bang is therefore not a geometric singularity but a **globally coherent, high‑ED initial condition** from which gradients — and thus structure — gradually emerge.

8.2 Inflation‑Like Behavior (Final Revision)

In standard cosmology, inflation is invoked to explain the early universe's smoothness, flatness, and causal coherence. It requires a new field, a potential, and a finely tuned exit mechanism. In ED, these features arise naturally from the structure of becoming in a **fully coupled, high‑ED early universe**, and inflation‑like behavior ends for a structural reason rather than a dynamical one.

When ED is extremely high and nearly uniform, participation bandwidth is maximal. Every region integrates the micro‑events of every other region with almost no resistance. In this regime, even small emerging ED gradients generate **explosive temporal tension**, producing a rapid early phase of expansion‑like behavior.

But this phase ends for a deeper reason:

event‑structure complexity begins to outpace event‑production capacity.

As the universe evolves:

- ED remains high, but
- the relational structure that must be maintained grows faster than ED itself
- participation can no longer remain globally coherent

- gradients begin to matter
- the universe transitions from a single coherent becoming to many locally coherent regions

Inflation-like behavior ends not because a field decays, but because **the universe can no longer maintain global relational simplicity**. The balance between production and structure shifts.

This produces all the observational signatures of inflation:

- rapid early expansion
- homogenization of ED variations
- causal coherence across large regions
- suppression of early anisotropies
- a natural, inevitable end to the inflation-like phase

But unlike inflation, this behavior is not an added mechanism.

It is the **structural transition** from a fully coupled high-ED state to a universe where relational complexity exceeds production capacity.

8.3 Smoothness and Flatness (Final Revision)

Two of the central puzzles of early-universe cosmology are:

- Why is the universe so smooth?
- Why is it so flat?

In GR, these require inflation.

In ED, they follow directly from the **fully coupled high-ED initial condition** and the structural transition that ends the inflation-like phase.

Smoothness

In the earliest epoch, ED is extremely high and nearly uniform. Participation bandwidth is maximal, meaning every region is in immediate relational contact with every other region. Micro-events propagate freely, and any emerging ED variations are rapidly equalized.

The universe is smooth because **maximal participation enforces coherence**.

This is the opposite of a black hole interior.

A black hole is smooth because it is **decoupled**.

The early universe is smooth because it is **fully coupled**.

Flatness

Flatness in GR corresponds to the absence of large-scale curvature.

In ED, curvature is the coarse-grained summary of ED gradients.

When ED is extremely high and gradients are extremely small relative to that high baseline, the universe appears flat. High ED suppresses relative gradients, making curvature negligible.

As event-structure complexity grows and inflation-like behavior ends, the universe retains this flatness because the transition preserves the large-scale uniformity established during the fully coupled phase.

Thus:

- Smoothness arises from **maximal early participation**.
- Flatness arises from **suppressed relative ED gradients**.
- Both persist because the inflation-like phase ends when **structure outpaces production**, not through a violent or disruptive process.

No inflaton, no potential, and no fine-tuning are required.

The early universe's observed properties follow directly from ED's primitives.

9. Mapping ED to FRW Dynamics

9.1 The Descriptive Role of the Metric

In standard cosmology, the Friedmann–Robertson–Walker (FRW) metric is taken as fundamental. It encodes the geometry of spacetime, the evolution of the scale factor, and the causal structure of the universe. In ED, the metric is not fundamental. It is a **coarse-grained summary** of the relational behavior of becoming across cosmic scales.

The FRW metric captures:

- how signals accumulate redshift
- how distances evolve over cosmic time
- how causal limits emerge
- how expansion accelerates or decelerates

ED reproduces all of these behaviors, but they arise from:

- ED gradients
- temporal tension
- participation stretching
- the evolving balance between event production and event-structure complexity

The metric is therefore a **derived descriptor**, not an ontological primitive. It is the mathematical shadow cast by the ED field when viewed at cosmological scales.

9.2 Friedmann‑Like Behavior From ED

The Friedmann equations describe how the scale factor evolves based on energy density, curvature, and the cosmological constant. ED reproduces the same observational behavior through a different mechanism.

The mapping works as follows:

- The **Hubble parameter** corresponds to the **first derivative of temporal tension** across cosmic distances.
- The **acceleration term** corresponds to the **second derivative of temporal tension**, driven by the steepening of ED gradients.
- The **curvature term** corresponds to the **coarse‑grained structure of ED gradients**, not geometric curvature.
- The **cosmological constant term** corresponds to the **long‑term trend in ED gradient steepening**, not a vacuum energy density.

Thus, the Friedmann equations emerge as a **phenomenological summary** of ED dynamics. They describe how the universe behaves, not why it behaves that way.

In ED:

- expansion is temporal tension
- acceleration is gradient steepening
- curvature is gradient structure
- Λ is the long-term evolution of ED gradients

The mathematics aligns, but the ontology is different.

9.3 Observational Equivalence

ED and FRW cosmology make the same predictions for:

- the redshift–distance relation
- the Hubble diagram
- cosmic acceleration
- large‑scale structure growth
- horizon behavior
- early‑universe smoothness and flatness

But they differ fundamentally in interpretation.

FRW Cosmology

- Expansion is the stretching of spacetime.
- Acceleration is driven by dark energy or Λ.
- Curvature is a geometric property.

- Horizons are geometric boundaries.

ED Cosmology

- Expansion is temporal tension across ED gradients.
- Acceleration is the steepening of ED gradients over time.
- Curvature is the coarse-grained summary of ED structure.
- Horizons are participation limits and decoupling surfaces.

The two frameworks are **observationally equivalent** but **ontologically distinct**.

ED explains why the FRW description works without adopting its geometric assumptions.

10. Consequences and Outlook

10.1 ED as a Cosmological Foundation

The Event Density framework provides a unified, ontologically transparent account of the universe's large-scale behavior. Expansion, acceleration, structure formation, and horizon behavior all arise from the same primitives:

- the rate of becoming
- the structure of ED gradients
- the relational dynamics of participation
- the evolving balance between event production and event-structure complexity

No geometric primitives are required.

No exotic fields are required.

No singularities or fine-tuned initial conditions are required.

Cosmology becomes the study of how becoming varies across the universe, not the study of how spacetime stretches or curves. The FRW metric and the Friedmann equations remain powerful descriptive tools, but they are no longer treated as fundamental. They are the large-scale summaries of ED dynamics.

ED therefore offers a cosmological foundation that is both conceptually simple and structurally rich.

10.2 Conceptual Clarity

The ED ontology resolves several longstanding conceptual issues in cosmology:

Singularities:

- The early universe is a high-ED, fully coupled state, not a divergence.

Inflation:

- Inflation-like behavior arises naturally from the transition between global coherence and the moment when event-structure complexity outpaces event-production capacity.

Flatness and Smoothness:

- These follow from maximal early participation and suppressed relative gradients.

Dark Energy:

- Cosmic acceleration is the steepening of ED gradients over time, not the effect of a new substance or a cosmological constant.

Horizons:

- Horizons are participation limits and decoupling surfaces, not geometric boundaries.

These clarifications are not add-ons. They are consequences of ED's primitives. The ontology is simple; the universe's behavior follows inevitably.

10.3 Sets Up Paper 9

This paper completes the cosmological arc of the ED program. The next step is to move from cosmic scales to microscopic scales. Paper 9 will develop the ED account of quantum behavior:

- micro-event discreteness
- participation as the relational substrate of quantum processes
- decoherence as participation thinning
- entanglement as shared becoming
- measurement as a shift in participation structure

Just as ED provides a unified account of relativistic and cosmological phenomena, it offers a unified account of quantum behavior grounded in the same primitives.

Paper 9 will therefore close the conceptual loop:

from micro-events to cosmic structure, all governed by the same ontology of becoming.