

Section 4. The 23 Core Concepts and Their Organization into Six Pillars

Direct reasoning at the primitive level is neither necessary nor efficient for most readers. For this reason, CUWF introduces a second structural layer: a set of 23 Core Concepts, articulated as the 23 Core Principles.

These core concepts do not function as axioms or postulates in the traditional sense. They do not introduce new entities, mechanisms, or ontological commitments beyond the four primitives. Instead, they act as conceptual constraints that govern how the primitives may be interpreted, combined, and applied across different physical domains.

Importantly:

- no core concept introduces new ontology,
- no concept modifies or extends the primitive set, and
- no concept operates independently of the primitives.

Each of the 23 core concepts can therefore be understood as a derived constraint—a rule that follows from taking the four primitives seriously and applying them consistently across scales and regimes.

For purposes of clarity and readability, the 23 core concepts are organized into six thematic pillars. This pillar structure does not represent additional layers of reality. It is a structural and pedagogical organization designed to make the framework navigable without altering its ontological commitments.

The six pillars below present the 23 core concepts in their canonical form. Each pillar groups related constraints, while remaining fully grounded in the same four primitive foundations.

Pillar 1 — Baseline Ontology: The Still Wave and Disturbance Reality

(1) The Still Wave (U_0).

CUWF begins with a single ontological baseline: the Still Wave, U_0 . It is the maximally coherent, undisturbed configuration of the universal wave-field. U_0 contains no preferred direction, no intrinsic asymmetry, and effectively zero entropy. In CUWF, U_0 replaces the role of any external background (such as a pre-existing spacetime container). Reality is not “located inside” spacetime; rather, what we call spacetime-like structure is later reconstructed as an emergent description of wave reconfiguration.

(2) Disturbance Modes (δU).

All observable phenomena are interpreted as structured deviations from U_0 , denoted δU . Particles, fields, radiation, and macroscopic objects are not treated as independent ontological primitives, but as persistent or transient disturbance patterns within the universal wave. These modes may be localized or extended, and are characterized by amplitude, structure, and relational placement within the global configuration.

Canonical implication.

CUWF is ontology-minimal: it posits one substrate (U_0) and one class of excitations (δU). Everything else—geometry, forces, time, and “objects”—is a derived description of how δU evolves and stabilizes under internal rules.

Pillar 2 — Relational Substrate: Reality Defined by Relations, Not Isolated Things

(3) Relational Structure.

CUWF treats the universe as a relational system. Disturbances are not isolated entities; they are nodes in a network of relations defined entirely within the wave-field. Interaction, influence, and correlation arise from the structure of this relational fabric, not from external mediation.

(4) No Absolute Reference Frame.

Because the substrate is relational and self-contained, there is no privileged frame. Any valid description must be invariant under transformations that preserve relational structure. This extends the spirit of relativity: not only coordinates, but the interpretive scaffolding of “where” and “when” must remain non-absolute.

(5) Relational Geometry → Observables.

All measurable quantities—distances, durations, energies, correlations—are not properties of isolated points or objects. They are derived from relational geometry encoded in the wave configuration. Observables are therefore emergent relational descriptors: what we measure is always a relation between configurations, not an intrinsic label carried by an independent object.

Canonical implication.

CUWF is not object-first physics. It is relation-first physics: what exists physically is what remains consistent as a relational pattern under collapse and entropic evolution.

Pillar 3 — Entropic Drive: Direction Without Fundamental Forces

(6) Entropic Gradient / Drift (ϵ).

Evolution has a directional bias in configuration space. CUWF models this as entropic drift, \mathcal{E} : not a conventional force, but a tendency of the wave-field to move away from low-entropy arrangements toward higher-entropy arrangements, subject to structural constraints and compatibility.

(7) Entropy \rightarrow Evolution Direction.

The arrow of evolution is constrained by entropy. CUWF does not require a naive monotonic increase of a single scalar in every local process, but it does assert a global directional tendency: the space of accessible configurations is asymmetrically traversed due to entropic constraints.

(8) Entropic Redistribution.

The wave-field continuously redistributes energy and entropy to maintain global coherence. Local structuring is compensated by adjustments elsewhere. This prevents the universe from decomposing into truly isolated subsystems and underwrites long-range consistency.

(9) No Independent Forces.

Forces are not primitive entities in CUWF. What conventional physics calls “forces” are reinterpreted as patterns of wave tension and entropic drift within the same substrate. The framework avoids duplicating ontology: there are not waves plus forces, but only waves whose constrained evolution can appear force-like at effective scales.

Canonical implication.

In CUWF, “dynamics” is not pushed by external interaction laws imposed on a background. It is pulled by entropic accessibility and relational constraints internal to the wave-field.

Pillar 4 — Collapse Engine: How Stability and Fact-Like Reality Are Generated

(10) Collapse Events.

A collapse event is a structural reconfiguration in which a complex disturbance reduces its effective degrees of freedom and settles into a more stable pattern. Collapse is not a purely epistemic update; it is a real generative mechanism by which incompatible tensions are minimized and information is reorganized.

(11) Collapse into Lower DOF States.

The system is permitted—and often compelled—to compress degrees of freedom. Complex patterns can collapse into simpler, stable configurations that behave as quasi-entities. This is a core pathway by which particle-like states, bound structures, and classical robustness can emerge.

(12) Stability Condition.

Not all disturbances decay. Some satisfy stability conditions determined by local tension, global constraints, and entropic drift. Stability is therefore not postulated; it is a dynamical outcome: stable patterns are those that remain compatible under repeated collapse-selection and redistribution.

(13) Formation of Stable Patterns.

Objects, in the CUWF sense, are recurring or persistent patterns of δU that survive collapse and remain dynamically self-consistent. The “thingness” of an object is not fundamental; it is the persistence of a pattern under the collapse engine.

Canonical implication.

CUWF explains definiteness and classical stability by an internal collapse mechanism plus stability conditions, rather than by importing a measurement postulate or assuming classical objects from the outset.

Pillar 5 — Propagation and Constraints: What the System Can Do, and What It Must Not Do

(14) Local–Global Coupling Rule.

No disturbance is strictly local. Every evolution of δU both affects and is constrained by the global configuration. CUWF therefore rejects the assumption of perfectly isolated subsystems: locality is an emergent approximation, not an absolute partition.

(15) Collapse–Propagation Duality.

Disturbances either propagate or collapse, depending on entropic conditions and compatibility constraints. Propagation is not the default “free motion”; collapse is not a special intervention. Both are lawful modes of evolution within a single framework.

(16) Self-Consistent Propagation.

Propagation is allowed only insofar as it remains self-consistent with local and global constraints. Path, deformation, and effective speed are shaped by entropic gradients and relational structure, not by arbitrary kinematic assumptions.

(17) No External Background.

CUWF forbids external spacetime, metric, or container structures that exist independently of the wave-field. The universe does not evolve “within” a background; the background-like descriptions are reconstructed from internal dynamics.

(18) No Hidden Variables.

CUWF does not introduce inaccessible parameters beyond the wave configuration and its internal rules. Explanations must remain grounded in the observable consequences of wave evolution.

Canonical implication.

Pillar 5 functions as a correctness filter: it prevents CUWF papers from silently re-importing background spacetime, isolation assumptions, or ad hoc hidden parameters.

Pillar 6 — Emergent Spacetime-Like World: Curvature, Time, and Macro-Physics as Derived Descriptions

(19) Curvature-Generation Rule.

Curvature is not fundamental. It emerges from accumulated tension and persistent disturbance patterns in the wave configuration. What classical theories interpret as spacetime curvature is treated here as a macroscopic expression of underlying relational deformation driven by δU distributions.

(20) Disturbance \rightarrow Curvature Relation.

There is no curvature without disturbance. Curvature-like behavior is downstream of structured δU , not an independent field that can exist on its own.

(21) Temporal Emergence Rule.

Time is not a pre-existing dimension. The experienced “flow of time” is the ordering of entropic transitions in the wave-field. Temporal structure is therefore reconstructed from sequences of reconfiguration rather than assumed as a universal axis.

(22) Collapse → Time Relation.

Collapse events generate effective temporal ticks. Regions undergoing different collapse sequencing can exhibit different effective temporal rates. This provides the conceptual basis for explaining time-dilation-like phenomena as differences in collapse ordering density rather than as pure metric geometry.

(23) Macro-Level Emergence.

From stable and semi-stable patterns, macroscopic descriptors—mass, charge, gravity, and spacetime-like behavior—emerge as effective summaries. These are not fundamental ingredients; they are coarse-grained compressions of the underlying wave-and-collapse dynamics.

Canonical implication.

CUWF treats “spacetime and time” as interpretive compressions of deeper dynamics: collapse generates ordering, disturbances generate curvature-like relational deformation, and macro-physics is the stable summary of repeated collapse-compatible evolution.

Mapping Table: Four Primitives – Six Pillars – 23 Core Concepts

Primitive(s)	Pillar	Core Concepts
FWB	Pillar 1 — Baseline Ontology	(1) Still Wave (U_0) (2) Disturbance Modes (δU)

FWB, DOF	Pillar 2 — Relational Substrate	(3) Relational Structure (4) No Absolute Reference Frame (5) Relational Geometry → Observables
FWB, DOF, Constraint	Pillar 3 — Entropic Drive	(6) Entropic Gradient / Drift (7) Entropy → Evolution Direction (8) Entropic Redistribution (9) No Independent Forces
FWB, DOF, Collapse	Pillar 4 — Collapse Engine	(10) Collapse Events (11) Collapse into Lower DOF States (12) Stability Condition (13) Formation of Stable Patterns
FWB, Constraint, Collapse	Pillar 5 — Propagation and Constraints	(14) Local–Global Coupling Rule (15) Collapse–Propagation Duality (16) Self-Consistent Propagation (17) No External

		Background (18) No Hidden Variables
FWB, DOF, Collapse, Constraint	Pillar 6 — Emergent Spacetime-Like World	(19) Curvature-Generation Rule (20) Disturbance → Curvature Relation (21) Temporal Emergence Rule (22) Collapse → Time Relation (23) Macro-Level Emergence