Section 6. The CUWF Entropic Descent Mechanism

Section 5 stated the canonical gravity law and the equation ladder that keeps the CUWF mechanism internal to its own variables. The present section makes that mechanism explicit. Its purpose is to state the minimum rules by which a generated entropic or collapse landscape produces the universal descent tendency that observers call gravity, while also explaining why force-language and weight remain useful at the interface level without becoming fundamental.

This section is therefore the force-free interpretation in its operational form. It does not yet move into later applications such as orbit channels, binary exchange, light bending, or black-hole boundaries. Instead, it secures the mechanism itself: what must be assumed, why gravity appears weak yet universal, why weight and free fall differ so sharply in experience, and how numerical calibration should be treated without contaminating the ontology of the main law.

6.1 Minimal Postulates of the CUWF Gravity Mechanism

The CUWF gravity mechanism can be stated through a compact set of rules. These are not intended to replace the full CUWF framework. They are only the minimal assumptions required to make A-14 operational and consistent across regimes.

The first postulate is the generated-landscape postulate. A scalar entropic or collapse potential field $\Phi^{E}(x)$ exists over the relevant state-space, and it is generated rather than assumed. Its form arises from entropic geometry together with collapse regularization.

The second postulate is the slope law. Gravity is defined as the negative gradient of that generated landscape:

$$g(x) := -\nabla\Phi^{E}(x)$$

The third postulate is descent evolution. State updates proceed by gradient descent on Φ^E with respect to the collapse sequencing parameter τ:

$$dx/d\tau = -\kappa \nabla \Phi^E(x), \quad \kappa > 0$$

Here κ expresses effective responsiveness or mobility under the available degrees of freedom and constraints.

The fourth postulate is collapse-source sculpting. Sources do not emit a pull. They source collapse-relevant structure that sculpts the landscape according to the CUWF-native relation:

$$\Delta^E \Phi^E(x) = S\_E(x)$$

This gives the layered chain of the mechanism in direct form: source ⟶ landscape ⟶ slope ⟶ descent.

The fifth postulate is constraint projection. Force-language and weight are not primitive. They arise when descent is locally constrained. In free descent the slope law remains active while the felt force can vanish. Under blocked descent, reaction forces appear as observer-facing interface quantities.

Together, these five rules define a fully force-free mechanism of gravity: generated landscape, slope-defined field, descent-sequenced evolution, source-to-landscape sculpting, and force as interface projection under constraint.

6.2 Why Gravity Appears Weak Yet Universal

Gravity is often described as the weakest interaction, yet it dominates large-scale structure and acts on everything. In CUWF, this is not paradoxical. It follows naturally once gravity is understood not as a force exchange, but as a structural property of a generated landscape.

Gravity appears weak because, in most ordinary regimes, the landscape Φ^E is smooth at macroscopic resolution. Smooth terrain produces modest gradients. Local descent tendencies are therefore often small compared with electromagnetic forces or contact forces arising from tightly constrained microscopic structure. In ordinary life, the slope is usually gentle.

Gravity is universal because the CUWF slope is not a charge-mediated interaction. It is a property of the shared landscape in which stable macro-states exist. Any object embedded in that landscape necessarily has a descent direction available to it. Universality therefore follows from shared embedding rather than from a special messenger acting selectively on bodies.

Gravity dominates on large scales because descent structure accumulates coherently across enormous source distributions and long distances. Basins deepen, channels become coherent, and global pathway organization emerges. What force-language describes as gravity winning at cosmic scale is, in CUWF language, the natural consequence of large-scale landscape sculpting and descent accumulation.

Thus, gravity is weak because local slopes are often gentle, and universal because all stable structures occupy the same generated terrain.

6.3 Weight and Free Fall

One of the most direct empirical clues that gravity is not a fundamental felt force is the contrast between free fall and weight.

In free fall, the system is allowed to follow the slope. Its evolution is simply descent on Φ^{E}. The observer experiences near-weightlessness not because gravity is absent, but because no local constraint is producing a counter-reaction. Descent is occurring, but it is not being resisted.

In standing or supported configurations, the landscape still defines a descent direction $-\nabla\Phi^{E}$, but local contact blocks the motion. The consequence is a support reaction balancing the descent tendency. If one introduces the observer-level gravitational bookkeeping force

$$F\_g(x) := m\, g(x) = -m\, \nabla\Phi^{E}(x)$$

and denotes the support normal reaction by N, then in static support one has

$$N + F\_g = 0$$

In this paper, weight is identified with the experienced support reaction W := N. The equality of magnitudes in static support does not erase the distinction of concepts. F_g is the bookkeeping expression of slope-driven descent. N, and therefore W, is the reaction required to block that descent.

This distinction explains the phenomenology cleanly. The subjective sensation of weight is strongest exactly when descent is prevented. In free fall, the same landscape is present, but the constraint response vanishes, so the force-feeling disappears. The CUWF mechanism therefore explains why gravity can remain active while weight can disappear.

6.4 Calibration as Metrology, Not Additional Ontology

CUWF deliberately keeps the generative gravity mechanism free of Newtonian symbols and constants. The main text answers the question: what generates gravity-like behavior? It does so entirely in native terms such as Φ^E, Δ^E, S_E, and the slope and descent laws.

But every physical theory must eventually connect to measured numbers. CUWF handles this by sharply separating mechanism from calibration. Mechanism belongs to ontology. Calibration belongs to metrology.

The native mechanism is fully contained in the relations

$$\Delta^E\Phi^E = S\_E$$

$$g = -\nabla\Phi^E$$

$$dx/d\tau = -\kappa\nabla\Phi^E$$

These relations define what gravity is within CUWF. They do not require Newton's constant, and they do not require pre-inserted classical source language.

By contrast, calibration answers a different question: how are CUWF-native quantities reported in SI units within a specified empirical regime? That bridge may be represented schematically through mappings such as

$$S\_E \leftrightarrow \alpha \cdot \text{(classical source proxy)}$$

$\Phi^E \leftrightarrow \beta \cdot$ (SI potential proxy)

g_SI = $\gamma \cdot$ g_CUWF

The coefficients α, β, and γ are not new physics. They are metrological scale choices fixed by one or more reference measurements. They tell the reader how to report CUWF predictions in standard units once a regime of comparison has been chosen.

In weak-field, slowly varying, approximately isotropic classical regimes, one may then introduce Newtonian symbols inside an appendix for comparison only. In that reporting layer, the familiar Poisson form and inverse-square behavior can be recovered through explicit calibration without converting Newton's constant into a primitive CUWF postulate.

This separation is essential. Calibration does not modify the slope law, introduce an additional force, or add a new interaction channel. It only states how to measure and report a CUWF-native prediction in a standard convention.

6.5 Why This Matters

This mechanism matters because it protects the conceptual architecture of A-14 from two opposite confusions. On one side, it prevents readers from treating gravity as a primitive force merely because force-language remains convenient in ordinary life. On the other side, it prevents readers from mistaking numerical agreement with Newtonian reporting forms for evidence that CUWF is simply Newton in disguise.

The distinction is exact. CUWF does not deny classical outcomes where Newtonian or relativistic reporting is successful. It claims that those outcomes are surface-level appearances of a deeper generator: a collapse-shaped, entropically defined landscape whose slope governs descent.

The gain is therefore explanatory rather than cosmetic. Gravity becomes weak yet universal without paradox, weight becomes a reaction to blocked descent rather than evidence of hidden pull, and calibration is confined to metrology rather than allowed to contaminate ontology.

6.6 Core Claim of Section 6

The result of this section may be stated in direct form. Gravity in CUWF is produced by a generated entropic or collapse landscape and expressed through descent on its slope. Force and weight are not fundamental ingredients of the mechanism; they are interface-level quantities arising when descent is described or constrained.

With this force-free descent mechanism established, the remaining sections can now apply one and the same generator across increasingly difficult regimes without changing the underlying law.