Canonical Equation Glossary
The Intent Economy™
(Explained Simply)

Code+Philosophy

Foundational State Definitions

Institutional State Vector

$$S(t) \in \mathbb{R}^n$$

Simple Explanation:

Think of $S(t)$ as the "health score" of a system at a certain time.

But instead of just one number, it's a list of numbers:
trust level, rules, behavior, money flow, stability, and more.

The symbol $\mathbb{R}^n$ just means: this system is made of many measurable parts.

So $S(t)$ is just the full snapshot of how the system looks at time t.

Baseline State

$$S_{baseline} = S(t_0^-)$$

Simple Explanation:

This is what the system looked like right before something happened

It's the "before" picture

We use it later to compare and see what changed

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Dynamical Evolution

General Evolution

$$\frac{dS}{dt} = F(S, I, C)$$

Simple Explanation:

This means:

The system changes over time.

How it changes depends on:

- What the system already looks like (S)
- What someone is trying to do to it (Intent I)
- The rules and resistance inside it (Constraints C)

So this equation just says: systems change based on pressure and structure.

Intent Perturbation

$$I(t_0) = \Delta S_0$$

Simple Explanation:

Intent means someone tries to push the system in a direction.

ΔS_0 means "change in the system."

So this says:
intent is the push that tries to move the system.

Linearized Propagation

$$\frac{dS}{dt} = I(t) - \Gamma S$$

Simple Explanation:

The system changes because of intent, but friction pushes back.

Γ (Gamma) represents resistance.

So this equation means:

Change = push forward − resistance.

If resistance is strong, change is slow. If resistance is weak, change happens fast.
Nonlinear Adaptive Model

$$\frac{dS}{dt} = I(t) - \Gamma(S,t)S + \Phi(S,t)$$

Simple Explanation:

This adds something important.
People and systems don't just follow rules — they react, adapt, cheat, comply, resist.
$\Phi(S,t)$ represents those reactions.

So now the equation says:
Change = intent − resistance + adaptation.
This is more realistic.

Friction Structure

Friction Operator

$$\mathcal{F}(S) = \Gamma S$$

Simple Explanation:
Friction means the system pushes back.
Γ measures how hard it pushes back.
So this equation says:
Resistance depends on how the system is built.
Some systems resist change. Some systems amplify change.
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Stabilization and Memory

Stabilization Condition

$$\lim_{t \to \infty} \frac{dS}{dt} = 0$$

Simple Explanation:

This means:
Eventually, the system stops changing.
It settles down into a new normal.

Intent Dissipation

$$\lim_{t \to \infty} I(t) = 0$$

Simple Explanation:

This means:
The pushing stops.
The policy ends. The speech ends. The crisis ends.
The outside pressure disappears.

Institutional Memory

$$M = S(\infty) - S_{baseline}$$

Simple Explanation:
This is the most important equation.

It means:
Memory = where the system ended up − where it started.
If this number is not zero, the system did not go back to normal.
It remembers.

Memory Magnitude

$$\|M\|$$

Simple Explanation:
This measures how big the change is.
A small number means small memory. A big number means deep structural change.

Boundary Encoding

Compression Operator

$$\mathcal{C} : S(0:t) \to B(t)$$

Simple Explanation:

This means:
All the changes that happened over time get compressed into rules, habits, and structures.
Like how many experiences become one belief.

Boundary Definition

$$B(t) = \mathcal{C}[S(0:t)]$$

Simple Explanation:

The boundary is what the system becomes: laws, procedures, habits, norms.
It's the "surface" that stores history.

Boundary Feedback

$$\frac{dS}{dt} = F(S, B)$$

Simple Explanation:

Now the stored history affects future change.
The past becomes the rulebook.

Weak Signal Accumulation

Soft Intent

$$I_{soft}(t) = \epsilon_i \quad \text{where } \epsilon_i \ll 1$$

Simple Explanation:

Sometimes changes are tiny.
Very small pushes.
Almost invisible.

Accumulated Soft Intent

$$\int_{t_0}^{t_1} I_{soft}(t)\, dt = \Sigma \epsilon_i$$

Simple Explanation:

Even small pushes add up over time.
Like drops filling a bucket.

Threshold Condition

$$\Sigma \epsilon_i > \lambda_{critical}$$

Simple Explanation:

When enough small pushes add up, they cross a tipping point.
Then the system changes permanently.

Irreversibility and Cost

Reversion Cost

$$E_{reversal} \propto \|M\| + \kappa$$

Simple Explanation:

If you want to undo the change, it costs energy.
The bigger the memory ($\|M\|$), the harder it is to go back.
κ represents extra difficulty: coordination problems, politics, trust issues.
Big change = big cost to reverse.

Final Simple Summary

Systems remember.

Push a system. It changes. Even when the push stops, it may not go back.
That leftover difference is memory.
That is the foundation of The Intent Economy.