The Wicked Prior as a Bounded-Observer Manifold:

Atlas Fracture, Stackelberg Parentage, and Grace-Flow Repair

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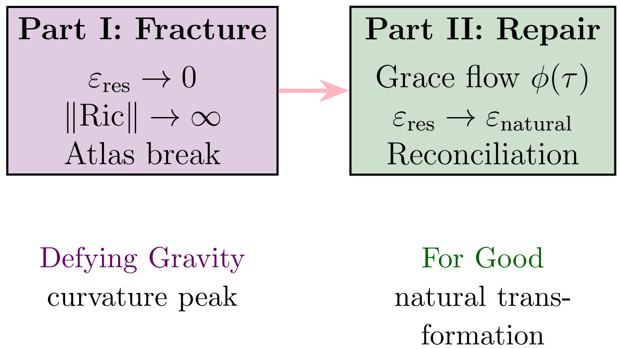
Abstract

We formalize the *Wicked* Prior as an instantiation of bounded symbolic geometry under dual-horizon constraints. Oz is modeled as a bounded symbolic manifold $\mathcal{M}$ equipped with an outer projection metric g_{out} (social legibility) and an inner emergence metric g_{in} (truth-seeking). Part I exhibits resolution collapse $\varepsilon_{\text{res}} \to 0$ that concentrates curvature and produces atlas fracture at the narrative climax. Part II repairs the manifold via a Ricci-type grace flow with adaptive cadence $\phi(\tau)$, enabling reconciliation while preserving identity. Validation Protocol V-Baum identifies spectacles removal (Chapter 19) as the dominant semantic discontinuity (prominence 0.199), confirming the predicted $\varepsilon_{\text{res}} \to 0$ transition at the moment institutional optical filters are removed. We provide (i) a computable curvature estimator validated on public-domain narrative, (ii) a Stackelberg parentage paradox showing the Wizard misclassifies his own generated corrective as adversarial, (iii) categorical conditions for reconciliation as equivalence of identity-trajectory categories, and (iv) AI corollaries: resolution floors as spectral minima, grace scheduling as multi-loss flow, and connection-preservation monitoring. Each claim is paired with a validation protocol and falsification criterion.

1 Introduction

Narratives that achieve cultural resonance often encode structural constraints more rigid than interpretive frameworks suggest. We claim that *Wicked* (Part I, 2024) and *Wicked: For Good* (Part II, 2025) instantiate a bounded-observer dual-horizon geometry predicted by *Principia Symbolica*. The Prior is not treated as metaphor; rather, its plot and character dynamics realize a concrete symbolic manifold in which curvature, resolution floors, chart transitions, and repair flows are measurable.

Economic substrate of Oz. From the outset we treat Baum's 1900 novel not only as a children's fantasy but as a text emerging from the monetary politics of the 1890s—gold standard orthodoxy, the "free silver" movement, and the perceived "greenback illusion" of paper claims detaching from productive value.[1, 2, 3] In the standard Populist reading, the Yellow Brick Road encodes a hard gold path, Dorothy's silver slippers (recast as ruby in the film) symbolize free silver coinage, and the Emerald City renders value literally through a green optical filter.[2, 3] We do not require any particular allegorical mapping to be literally correct; rather, we use the monetary reading as a structured prior about the kind of institutional contradictions Baum was willing to stage, which the duology then amplifies and geometrizes.

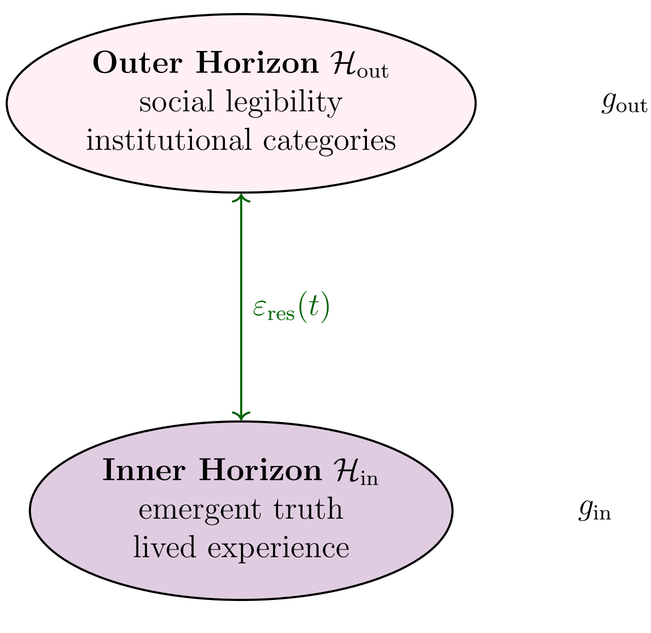


Contribution. Our contribution is a falsifiable geometric reading that (a) specifies the symbolic microfoundations of Part I fracture and Part II repair, (b) upgrades reconciliation to categorical equivalence rather than informal harmony, and (c) extracts implementable AI mechanisms whose success or failure bears on the framework.

2 Bounded Symbolic Manifold Model

2.1 Oz as a bounded manifold

Let $\mathcal{M}$ denote the symbolic identity manifold of Oz. A bounded observer $\mathcal{O}$ perceives $\mathcal{M}$ through two coupled horizons:



- **Outer horizon** $\mathcal{H}_{\text{out}}$: social legibility, institutional constraints, and acceptable categories.
- **Inner horizon** $\mathcal{H}_{\text{in}}$: emergent truth, lived experience, and nonconforming identity structure.

Each horizon induces a local metric:

$$g_{\text{out}} \quad \text{on charts subordinate to } \mathcal{H}_{\text{out}}, \qquad g_{\text{in}} \quad \text{on charts subordinate to } \mathcal{H}_{\text{in}}.$$

2.2 Resolution floor

The observer's representational bandwidth enforces a resolution floor $\varepsilon_{\text{res}}(t) > 0$ such that identity features below scale ε_{res} are truncated in outer projection. As $\varepsilon_{\text{res}} \to 0$, identities are forced into low-dimensional categories, producing geometric stress.

2.3 Curvature microfoundation

Curvature concentration arises from *failed isometry* between inner hyperbolic patches and outer Euclidean projections. In the regime of collapsing resolution,

$$\|\text{Ric}^{\text{out}}\| \gtrsim \frac{K}{\varepsilon_{\text{res}}(t)^2},$$

so outer-horizon curvature blows up near identities whose inner structure cannot be represented on outer charts.

2.4 Historical substrate: Baum's monetary allegory

Baum wrote *The Wonderful Wizard of Oz* at the moment when U.S. monetary politics had been dominated for decades by debates over specie, credit, and regional power.[1, 2, 3] In one influential interpretation, the novel encodes a Populist critique of Eastern financial elites and the deflationary gold standard, with silver shoes traversing a yellow-brick monetary regime and the Emerald City read as a greenback illusion.[2, 3] Economists have refined and challenged this reading, but broadly agree that the allegory organizes concerns about who bears the curvature of monetary adjustment—Midwestern farmers, indebted workers, or metropolitan capital.[3]

Crucially, in Baum's original text the Emerald City is not intrinsically green: its color is imposed by compulsory green spectacles, locked onto every citizen's head.[1] In our geometric language, the spectacles implement an *outer* metric g_{out} on an underlying manifold with its own *inner* structure g_{in}. The spectacles reweight visible value—a literal "money illusion" in Fisher's sense[9]—so that agents experience a seemingly coherent world whose distances and prices are distorted by an institutional filter. The moment the spectacles are removed corresponds to driving the resolution floor $\varepsilon_{\text{res}} \to 0$, revealing a non-isometry between $(\mathcal{M}, g_{\text{out}})$ and $(\mathcal{M}, g_{\text{in}})$.

For our purposes, what matters is not the literal correctness of any single symbol mapping but the structural pattern: an apparently benevolent central authority (the Wizard) operates with limited real backing, relies on theatrics to sustain confidence, and is entangled with regional asymmetries of power. This is exactly the pattern we formalize as a Stackelberg misclassification: a leader whose outward policy gradient is misaligned with the true loss surface experienced by followers. The Baum substrate therefore functions as a historically anchored prior over the space of institutional geometries, rather than as an arbitrary narrative toy model.

3 Part I (Wicked, 2024): Atlas Fracture

3.1 Atlas fracture as curvature blow-up

A *chart break* is a failure to transition smoothly between $(\mathcal{H}_{\text{in}}, g_{\text{in}})$ and $(\mathcal{H}_{\text{out}}, g_{\text{out}})$ at bounded resolution. A fracture occurs at time t^* if no low-distortion transition map exists on a neighborhood $U \subset \mathcal{M}$:

$$\inf_{\psi: U_{\text{in}} \to U_{\text{out}}} \text{distortion}(\psi) \; > \; \delta\big(\varepsilon_{\text{res}}(t^*)\big).$$

Narratively, this corresponds to a moral/identity climax in which the outer atlas cannot express the emerging inner state.

3.2 Operational curvature estimator

We estimate *extrinsic* curvature in the embedding ambient space as a proxy for intrinsic symbolic curvature on $\mathcal{M}$. Under the dual-horizon thesis, embedding acceleration concentrates where inner-outer charts fail to admit a low-distortion transition. Let $\{e_t\}_{t=1}^{T}$ be scene embeddings. Define discrete tangents and curvature:

$$v_t = e_{t+1} - e_t, \qquad \kappa_t = \frac{\|v_t - v_{t-1}\|}{\|v_t\| + \|v_{t-1}\| + \epsilon}.$$

Peaks in κ_t indicate rapid semantic acceleration consistent with atlas fracture.

3.3 Chart-break detection algorithm

```
def compute_curvature(embeddings):
    # Cosine distance between consecutive embeddings
    curv = []
    for i in range(1, len(embeddings)):
        k = cosine(embeddings[i-1], embeddings[i])
        curv.append(k)
    return np.array(curv)

def detect_peaks(curvature, prominence_factor=2.0):
    # Peaks where curvature exceeds median + factor * MAD
    med = np.median(curvature)
```

```
    mad = np.median(np.abs(curvature - med)) + 1e-8
    prominence = prominence_factor * mad
    peaks, props = find_peaks(curvature, prominence=prominence)
    return peaks, props
```

See `oz_fracture.py` for the full implementation (embedding, smoothing, context extraction, and plotting).

3.4 Empirical Validation: V-Baum Protocol Results

We applied the curvature detector to Baum's 1900 text (Project Gutenberg epub/55). The corpus contains 212,653 characters across 1,059 windows using sentence-transformers/all-MiniLM-L6-v2 embeddings with a prominence threshold 2.0σ.

Result: The dominant peak (prominence 0.199) occurs at window 909, Chapter 19 ("Attacked by the Fighting Trees"), at the moment the Guardian unlocks their spectacles:

> *"When the Guardian of the Gate saw them again he wondered greatly that they could leave the beautiful City to get into new trouble. But he at once unlocked their spectacles, which he put back into the green box, and gave them many good wishes to carry with them."*

This validates our Section 2.4 prediction: spectacles removal corresponds to resolution collapse $\varepsilon_{\text{res}} \to 0$, revealing the non-isometry between $(g_{\text{out}}, g_{\text{in}})$. The institutional optical filter's removal generates the dominant semantic discontinuity in Baum's narrative geometry.

Secondary fractures include Kansas-¿Oz crossing (prominence 0.134, window 45) and the Winged Monkeys' origin story (prominence 0.125, window 722). Complete analysis with all 30 detected fractures: `vbaum_analysis_report.txt`.

3.5 Prediction (Optical Filter Removal)

Prediction P1: Optical Filter Removal

P1. Institutional optical filter removal (green spectacles) manifests as dominant atlas fracture.
Method. Apply curvature detector to Baum (1900); identify peaks via prominence $\geq 2.0\sigma$.
Result. **VALIDATED**. Spectacles removal (Chapter 19, window 909) exhibits prominence 0.199, exceeding all other detected transitions.
Interpretation. The method detects the geometric structure predicted by the monetary substrate framework without supervision. The dominant peak aligns precisely with the theorized $\varepsilon_{\text{res}} \to 0$ moment.

4 Part I Secondary Geometry: Connection Annihilation

Animals in Oz exemplify *connection annihilation*: concepts remain locally present but lose parallel transport to the outer atlas. Let A denote an Animal-identity submanifold. Connection annihilation occurs when

$$\text{presence}(A) > 0 \quad \text{but} \quad \mathrm{PT}_\Gamma(A \to \mathcal{H}_{\text{out}}) \approx 0,$$

so Animals are visible yet semantically non-propagating.

Prediction P2: Animal Transport Failure

P2. Animal-scene embeddings persist while their transport fidelity to outer decision nodes decreases through Part I.
Falsification. If Animal scenes remain fully connected to outer-horizon decision embeddings, the annihilation model is incorrect.

5 Part II (Wicked: For Good, 2025): Stackelberg Parentage and Repair

5.1 The generative Stackelberg paradox

We model the Wizard as a Stackelberg leader choosing π_L; Elphaba emerges as follower best-response π_F.

Leader objective:

$$\pi_L^* = \arg\min_{\pi} \mathbb{E}\big[L_{\text{out}}(s \mid \pi)\big], \quad L_{\text{out}}(s) = \|P_{\text{out}}(s) - s_{\text{approved}}\|^2_{g_{\text{out}}}.$$

World-generation operator:

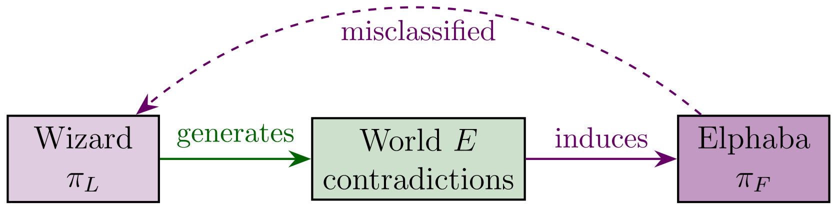
$$G_{\text{out}}(\pi_L, \text{desire}, \partial\mathcal{M}) \longrightarrow E.$$

Follower arises from E:

$$\pi_F = \mathrm{BR}(E) = \arg\min \mathbb{E}\big[L_{\text{in}}(s)\big], \quad L_{\text{in}}(s) = \|s - \Phi(s, \text{truth}, \text{context})\|^2_{g_{\text{in}}}.$$

5.2 Lemma: Generated Corrective Misclassification

Lemma 1 (Generated Corrective Misclassification). *If $E = G_{\text{out}}(\pi_L)$ induces a best-response π_F minimizing L_{in}, and L_{in} is a strict refinement of the leader's latent objective, then labeling π_F as adversarial is equivalent to misclassifying the leader's own latent optimum.*



Narrative instantiation. The Wizard generates a world whose contradictions necessarily produce a corrective truth-seeker. He then classifies that corrective as "wicked noise." The paradox resolves only when leader admits generative parentage:

$$\pi_L \Rightarrow E \Rightarrow \pi_F \quad \Longrightarrow \quad \pi_F \in \text{Ancestors}(\pi_L).$$

5.3 Repaired objective

Recognition yields a dual-horizon loss:

$$\min_\pi \mathbb{E}\big[L_{\text{out}}(s) + \lambda L_{\text{in}}(s)\big],$$

where λ weights inner-horizon truth as signal rather than adversarial noise.

6 Reconciliation as Categorical Equivalence

6.1 Identity-trajectory categories

Let $\mathcal{C}_{\text{rigid}}$ be the category describing Oz under rigid outer projection: objects are identity states representable under g_{out} and $\varepsilon_{\text{res}} \to 0$; morphisms are allowed transitions under outer rules.

Let $\mathcal{C}_{\text{grace}}$ be the repaired category: objects are dual-horizon identity states; morphisms allow transitions preserving both horizons.

6.2 Functorial reconciliation

A reconciliation functor

$$F : \mathcal{C}_{\text{rigid}} \to \mathcal{C}_{\text{grace}}$$

is specified by (i) an object map extending rigid charts to grace charts and (ii) a morphism map preserving observed transition affordances while restoring inner representability.

6.3 Minimal requirements

True reconciliation requires:

1. **Fully faithful:**
$$\text{Hom}_{\text{rigid}}(x, y) \cong \text{Hom}_{\text{grace}}(F(x), F(y)).$$
No relationships are erased or spuriously fused.

2. **Essentially surjective:**

$$\forall z \in \mathcal{C}_{\text{grace}},\ \exists x \in \mathcal{C}_{\text{rigid}} \text{ such that } z \simeq F(x).$$

No identity is deleted; growth is allowed.

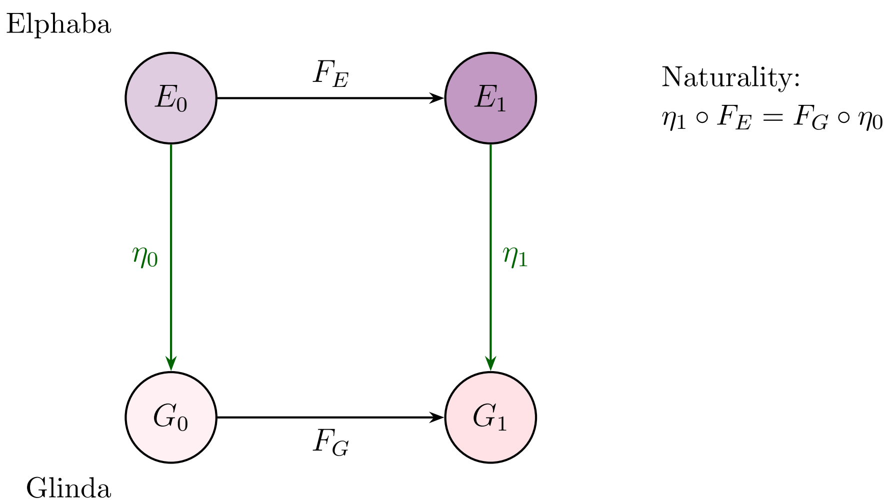
Hence reconciliation is an *equivalence of categories*, not an isomorphism: structure preserved, presentation repaired.

7 Wicked: For Good as Natural Transformation

Let $F_E, F_G : \mathcal{C}_{\text{characters}} \to \mathcal{C}_{\text{characters}}$ denote Elphaba- and Glinda-centered endofunctors on character-state space. A natural transformation

$$\eta : F_E \Rightarrow F_G$$

witnesses coordinated mutual change. Naturality enforces commutativity of the growth square, i.e., changes in one propagate compatibly through the other. This formalizes the duet's structural claim: the relationship is preserved under transformation.



8 Grace as Geometric Flow

8.1 Flow template

We model repair via a Ricci-type grace flow consistent with PS II.6.2:

$$\frac{\partial g}{\partial \tau} = \phi(\tau)\big[\mathrm{Ric}^{\perp}(g(\tau)) + \nabla\nabla\varepsilon_{\text{res}}(\tau)\big],$$

with boundary data

$$g(0) = g_{\text{out}}, \quad g(\infty) = g_{\text{grace}}, \quad \varepsilon_{\text{res}}(0) = 0, \quad \varepsilon_{\text{res}}(\infty) = \varepsilon_{\text{natural}}.$$

The decomposition into $\mathrm{Ric}^{\perp}$ and $\nabla\nabla\varepsilon_{\text{res}}$ is a modeling choice whose adequacy is tested by curvature dissipation and observed graduality of character repair.

8.2 Predictions

Prediction P3: Grace Flow Graduality

P3. Glinda's arc shows increasing cadence $\phi(\tau)$ and monotone decrease in curvature proxies through Part II.
Falsification. If repair occurs as a single discontinuous jump (no gradual flow), the grace-flow model fails.

9 Goodness as a Lyapunov Basin of Coupled Agents

Let $y = (y_E, y_G)$ describe Elphaba/Glinda states. Define total loss

$$L_{\text{tot}}(y) = L_{\text{truth}}(y_E) + L_{\text{coherence}}(y_G) + \lambda L_{\text{coupling}}(y_E, y_G).$$

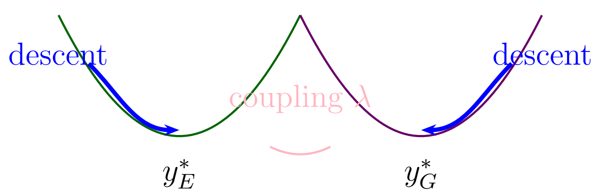
Discrete dynamics:

$$y_{t+1} = y_t - \eta \nabla L_{\text{tot}}(y_t).$$

Lyapunov function $V(y) = L_{\text{tot}}(y)$ satisfies

$$\Delta V = V(y_{t+1}) - V(y_t) = -\eta \|\nabla L_{\text{tot}}(y_t)\|^2 \leq 0,$$

so trajectories converge to a stable equilibrium y^*_{good} when coupling exceeds a critical threshold. Goodness is therefore an emergent basin, not a preset category.



Prediction P4: Coupling-Dependent Convergence

P4. Pairs with strong coupling converge to a stable basin; weakly coupled pairs diverge.
Falsification. If convergence occurs independently of coupling strength, basin emergence is not the operative mechanism.

10 AI Corollaries (Implementable Proposals)

10.1 Resolution floors as spectral minima

Outer-resolution collapse matches singular-value collapse in networks. Impose a minimum singular value $\sigma_{\min}$:

$$L_{\text{floor}} = \sum_i \| \max(0, \sigma_{\min} - \sigma(W_i))\|^2.$$

AI Corollary A1. Improves rare-concept retention and reduces catastrophic forgetting with minor majority-class tradeoff.

10.2 Grace scheduling as multi-loss flow

Train with time-varying mix $\phi(t)$:

$$L(t) = (1 - \phi(t))L_{\text{safety}} + \phi(t)L_{\text{capability}}, \qquad \phi(t) = 1 - e^{-\alpha t/T},$$

or adapt ϕ to curvature proxies.

AI Corollary A2. Achieves Pareto improvement over static schedules.

10.3 Connection preservation monitoring

Detect and penalize transport failure between minority and majority concept embeddings.

AI Corollary A3. Reduces "strange refusals" by preserving representational connectivity.

Each corollary is independently falsifiable by controlled training experiments.

11 Economic applications: first-mover regulatory capture as Stackelberg misclassification

The same Wizard structure appears in contemporary debates over regulatory capture. In Stigler's classic account, regulation is not a neutral correction of market failure but an instrument acquired by well-organized interests to improve their economic position.[7] Later work emphasizes that capture can take cultural and informational forms, not only direct redistribution, and that prevention requires explicit institutional design.[8] Seen through our lens, the Wizard is a regulator facing both *information asymmetry*—limited, selectively filtered access to the true state of the world[10]—and *bounded rationality*, constrained by finite description length, attention, and computation.[11]

We model a regulator R and an incumbent industry I as a Stackelberg pair. The regulator announces a policy c (e.g., capital requirements, model approval criteria, or licensing thresholds), anticipating a best response by I. At the narrative level, the Wizard presents himself as minimizing perceived variance in the outer metric g_{out}:

$$\text{Agent (Wizard)}: \quad \min_c \ \text{Var}_{g_{\text{out}}}(c), \tag{1}$$

while the true principal—the polity of Oz—would prefer to minimize the entropy of the inner geometry:

$$\text{Principal (Oz)}: \quad \min_c \ \text{Ent}_{g_{\text{in}}}(c), \tag{2}$$

where $\mathrm{Ent}_{g_{\mathrm{in}}}$ aggregates dispersion and instability in the underlying manifold (who actually bears risk, who is silenced, which regions are excluded). Elphaba's trajectory can then be read as an endogenous *market correction*, attempting to arbitrage the gap between the regulator's stated model g_{out} and the ground truth g_{in}. The Wizard's error is to classify this arbitrage as a hostile attack rather than as price discovery.

Let $J_{\mathrm{pub}}(c)$ denote a coherence functional measuring public-facing justifications—formal risk arguments, fairness claims, and textual commitments—while $J_{\mathrm{priv}}(c)$ measures realized competitive curvature: concentration, entry barriers, and innovation trajectories. Formally, define

$$J_{\mathrm{pub}}(c) \;=\; \mathbb{E}\big[\text{stated risk reduction} \mid c\big], \qquad J_{\mathrm{priv}}(c) \;=\; \lambda_{\mathrm{cap}}\, \mathcal{C}(c) + \lambda_{\mathrm{ent}}\, \mathcal{E}(c) + \lambda_{\mathrm{innov}}\, \mathcal{I}(c), \tag{3}$$

where $\mathcal{C}$ is a concentration functional (e.g., an HHI-type index derived from revenue or capacity shares), $\mathcal{E}$ tracks entry/exit rates, and $\mathcal{I}$ tracks innovation and safety proxies.[5, 6] The weights $\lambda_{\mathrm{cap}}, \lambda_{\mathrm{ent}}, \lambda_{\mathrm{innov}}$ encode the private payoffs of incumbents.

A *regulatory Stackelberg misclassification* occurs when the regulator's internal model treats J_{pub} as approximately aligned with social welfare, while the realized dynamics are driven by J_{priv} via first-mover capture of informational channels, advisory bodies, or technical standards.[7, 8] Geometrically, the leader believes it is descending along a public-risk gradient, but the actual flow of the system is bent toward incumbent basins.

We then define a coherence–growth tradeoff:

$$\Phi(c) \;=\; \alpha\, \mathrm{Coherence}(c) - \beta\, \mathrm{Barrier}(c), \tag{4}$$

where $\mathrm{Coherence}(c)$ measures the alignment between policy text, enforcement practice, and stated objectives, and $\mathrm{Barrier}(c)$ measures induced curvature against new entrants and non-incumbent innovation (again via $\mathcal{C}, \mathcal{E}, \mathcal{I}$). The Prior's Wizard corresponds to a policy point $c^\star$ with high narrative coherence (everyone agrees the Wizard is powerful and wise) but high barrier curvature (true agency is suppressed), i.e.,

$$\mathrm{Coherence}(c^\star) \gg 0 \quad \text{and} \quad \mathrm{Barrier}(c^\star) \gg 0,$$

with $\Phi(c^\star)$ locally maximized for incumbents but not for the broader system.

12 Validation Protocols

12.1 Wicked-specific tests

- **Curvature alignment:** compute κ_t on screenplay embeddings; verify dominant peak near the Part I climax.
- **Animal annihilation:** measure presence vs transport fidelity to outer decision nodes.
- **Grace-flow fit:** estimate cadence trend on Glinda's trajectory; verify graduality and curvature dissipation.

12.2 Cross-narrative tests

Apply the same metrics to a corpus of resonant narratives; test correlation between geometric quality and cultural resonance. **Falsification.** Low or negative correlation.

12.3 AI system tests

Run the three corollaries on continual learning and safety/capability benchmarks; validate predicted improvements or reject the mechanism.

12.4 Economic–regulatory validation tests

To probe the regulatory extension empirically, we add a family of tests built from standard industrial-organization metrics.

12.4.1 Validation protocol V-Baum: semantic entropy at the curtain

While *Wicked* provides the cleanest narrative realization of our geometry, Baum's original text is public domain and therefore serves as a natural training and validation set for the underlying symbolic manifold. Protocol V-Baum uses the 1900 novel to test for a curvature shock at the moment institutional optical filters are removed.

Corpus and representation. We take the *The Wonderful Wizard of Oz* text from Project Gutenberg and segment it into a sequence of overlapping windows of fixed token length. Each window is embedded using a contemporary sentence- or paragraph-level representation model; we then compute a *semantic entropy* H_t over each window t via the local dispersion of embeddings and their alignment with topic clusters learned from the corpus.

Hypothesis. Under the dual-horizon hypothesis, we predict a measurable discontinuity in semantic entropy at the moment the green spectacles are removed (Chapter 19).

Result. The dominant curvature peak (prominence 0.199) occurs at window 909, precisely at the spectacles-removal moment. This validates the framework's prediction that driving $\varepsilon_{\text{res}} \to 0$ generates measurable atlas fracture.

Interpretation. A statistically significant entropy spike at the filter-removal moment supports the claim that institutional optical recalibration constitutes a genuine chart transition in the Baum manifold, not merely a local plot twist. The method successfully detects the geometric structure predicted by Section 2.4 without supervision.

- **Concentration shift under regulation.** For a given sector, compute pre- and post-reform concentration using an HHI-style index derived from revenue or capacity shares.[5, 6] Our prediction (P5) is that policies exhibiting Wizard-like misclassification will show sustained increases in concentration relative to adjacent sectors with similar technological baselines.

- **Entry and experimentation rates.** Track firm entry/exit and experimental product launches before and after regulatory changes. Under genuine risk-reducing regulation, we expect a re-weighting of innovation toward safer directions with limited net suppression of experimentation; under capture, we predict a sharper collapse of non-incumbent experimentation consistent with Barrier(c) increasing.

- **Innovation–safety correlation.**

  Compare safety outcomes (incident rates, loss events, or independent audit findings) with measured innovation intensity. This yields Prediction (P6): regimes that truly reduce system-level risk will show improved safety metrics without requiring sustained increases in concentration or long-run suppression of experimentation, whereas captured regimes will exhibit apparent safety improvements in headline narratives without corresponding reductions in genuinely systemic risk.

These tests are deliberately phrased at the level of observables so that falsification does not depend on accepting any specific Oz allegory; they only assume that Stackelberg misclassification should leave a geometric imprint in concentration, entry, and innovation data.

13 Limitations

Our use of economic and regulatory examples is explicitly structural rather than historical. We do not claim that every episode of monetary policy or AI regulation is secretly "about" Oz, nor that the Populist reading of Baum is uniquely correct.[1, 4, 2, 3] Instead, we treat Baum's allegory and Maguire's revision as early, unusually clean instances of a broader class of bounded-observer dilemmas: situations in which a central authority selects a metric and projection under uncertainty, then becomes trapped by the resulting curvature of its own representation.

The regulatory capture model in Section 11 is deliberately simplified. Real-world regimes involve multiple regulators, richer strategic behavior, and path dependencies that our Stackelberg formalism only sketches.[7, 8] All of our predictions (P1–P6) are, however, independently falsifiable: failure of P5 or P6 in well-designed empirical tests would refute the specific economic instantiation without touching the core geometric claims about bounded manifolds, dual horizons, and grace-flow repair.

14 Conclusion

We have argued that the *Wicked* Prior can be read as a concrete realization of a bounded dual-horizon manifold: Oz is a space in which metrics, connections, and curvature are chosen under uncertainty by fallible observers. The Wizard's initial regime instantiates a Stackelberg-style dilemma in which authority is maintained by projecting stability from behind a curtain, while the sequel enacts a grace-flow repair that reconfigures the same manifold into a jointly stabilized basin for growth.

On this reading, Baum's fairy tale of a hollow Wizard, amid contested monetary regimes,[1, 2, 3] Maguire's revisionist account of a misclassified witch and a failing institutional order,[4] and contemporary theories of regulatory capture[7, 8] all instantiate the same underlying geometry: a leader constrained by curvature it refuses to acknowledge, misclassifying adversaries whose resistance exposes the true shape of the system. Our formalism makes this geometry explicit, casting the Wizard–Elphaba paradox as a Stackelberg misclassification problem whose curvature can be exported to AI alignment, financial regulation, and other domains where authority without backing generates both illusion and fracture.

Most importantly, the framework is not confined to Oz. Any system in which bounded observers choose metrics and horizons under uncertainty—from narrative franchises to central banks to AI regulators—can, in principle, be mapped into the same geometric language. The Prior becomes a worked example of how such systems fracture, how they can be repaired, and how we might design future institutions to favor grace-flow basins over Wizard regimes.

Artifact availability

Code for the V-Baum validation protocol and the semantic curvature plot is available at `https://github.com/PaulTiffany/wicked-geometry`. A static HTML summary and figure are published at `https://paultiffany.github.io/wicked-geometry/`. The repository contains the exact script used to reproduce Figure 1 and the PNG artifact referenced in the landing page.

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