The Vanity Press Economy: From Subsidized Publication to Monetized Uselessness

Flyxion

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Abstract

This treatise examines the evolution of knowledge economies from seventeenth-century royal vanity presses to AI-driven platforms, arguing that modern systems monetize user-generated noise through computational seigniorage, inverting historical subsidies. Integrating Mario Biagioli's historical analysis, Ed Zitron and Cory Doctorow's platform critiques, Jürgen Schmidhuber's compression epistemology, and the Relativistic Scalar–Vector Plenum (RSVP) framework, we formalize this shift through game-theoretic models, entropic field equations, and empirical platform studies. We propose a Deccelerationist framework with a Compression Commons to reward semantic novelty, penalize redundancy, and preserve agency, addressing objections and exploring tokenized patronage as a new censorship mechanism.

Keywords: vanity press, AI economy, data compression, entropy, Deccelerationism, RSVP framework, platform feudalism, computational seigniorage, Kolmogorov complexity, tokenized patronage

1 Introduction

The contemporary information economy transforms knowledge production into a self-funding engine of monetized uselessness, where users subsidize platforms through data, fees, or cognitive labor. Building on Biagioli (2002), Zitron (2023); Doctorow (2023), Schmidhuber (2009), and the Relativistic Scalar–Vector Plenum (RSVP) framework, this article traces a genealogy from royal vanity presses to AI platforms, formalizing subsidy inversion, entropic dynamics, and compression theft. We propose a Deccelerationist ethics, including a Compression Commons, and explore tokenized patronage as a modern censorship mechanism, addressing critiques and outlining future directions.

2 Historical Foundations

2.1 Royal Vanity Presses

Seventeenth-century journals like *Philosophical Transactions* were state-subsidized, with costs (£200/year, 1665–1700) exceeding subscriptions (£50) (Johns, 1998; Biagioli, 2002).

2.2 Censorship, Prestige, and Subsidized Rationality

Peer review balanced censorship and patronage, constructing rationality as a political artifact (Biagioli, 2002).

2.3 From Patronage to Markets

Nineteenth-century subscription models and twentieth-century consolidation (e.g., Elsevier, $10B market) marked a proto-rentier phase (Fyfe and Moxham, 2016; Csiszar, 2018).

2.4 Digital Commons Era

Early internet platforms (arXiv, JSTOR) offered open access, peaking around 2005 (Csiszar, 2018).

2.5 Subsidy Gradient

Define the subsidy gradient as:

$$\sigma(t) = \frac{P_{\text{subsidy}}(t) - C_{\text{subsidy}}(t)}{P_{\text{subsidy}}(t) + C_{\text{subsidy}}(t)},$$

where P_{subsidy} is institutional expenditure and C_{subsidy} is user cost. Inversion at $t_i \approx 2010$ aligns with Web 2.0 monetization.

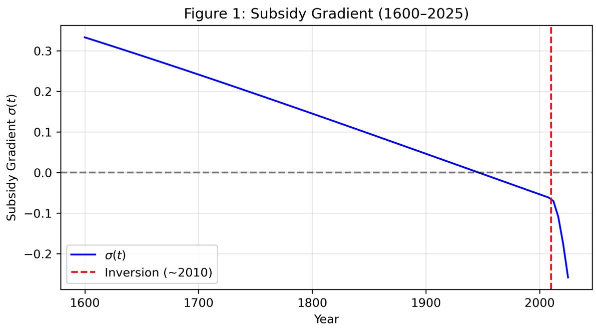


Figure 1: Subsidy Gradient $\sigma(t)$: From Patronage to Enclosure (1600–2025).

2.6 Materiality Thesis

Print costs: $C_{\text{print}} = c_p n$, $c_p \approx 12$ pence/sheet (Johns, 1998). Digital: $C_{\text{digital}} = C_0 + \epsilon n$, $\epsilon \to 0$ (Kittler, 1999).

3 The Platform Turn

3.1 Subsidy Inversion Model

Users and venture capital fund platforms, with Google's RD at \$31B in 2023 (Doctorow, 2023).

3.2 Game Theory of Participation

Model as a repeated asymmetric game:

$$U_P(\pi_P) = \sum_{u=1}^{N} [p_u(\theta_u) - c(\theta_u)], \quad U_u(\theta_u) = v_u(\theta_u) - p_u(\theta_u).$$

The Nash equilibrium yields noise overproduction, with entropy overshoot $E_u = S_u - S_{\text{optimal}}$.

3.3 Paper-Mill Logic

AI spam: arXiv (10% suspected, 2023), Kindle (20% spam, 2024) (Zitron, 2024).

3.4 Computational Seigniorage

Define computational seigniorage as:

$$\mathcal{S}(t) = \int_\Omega \big(v_{\text{market}}(\tau) - c_{\text{production}}(\tau)\big)\rho(\tau, t)\, d\tau,$$

with $v_{\text{market}} \approx \$0.01/1K$ tokens, $c_{\text{production}} \approx \$0.002/1K$ (OpenAI, 2025).

Table 1: Subsidy Regimes Comparison

Epoch	**Subsidizer**	**Medium**	**Value**	**Energy (kWh)**	**Access (%)**
17th C	Royal	Print	Prestige	10/page	5
21st C	User/VC	Compute	Engagement	0.1/1M tokens	90

4 Thermodynamic Governance

4.1 RSVP Derivation

Agents have semantic states $\phi_i(t)$ and attention vectors $\mathbf{v}_i(t)$:

$$\dot{\phi}_i = \sum_j J_{ij}(\phi_j - \phi_i) + \xi_i, \quad \dot{\mathbf{v}}_i = -\nabla_i U(\phi_i) + \eta_i.$$

Coarse-grained fields:

$$\Phi(\mathbf{x}, t) = \langle \phi_i \rangle_{\text{loc}}, \quad \mathbf{v}(\mathbf{x}, t) = \langle \mathbf{v}_i \rangle_{\text{loc}}, \quad S(\mathbf{x}, t) = -\sum_i p_i \ln p_i.$$

Field equations with Decccelerationist damping:

$$\frac{\partial \Phi}{\partial t} + \nabla \cdot (\Phi \mathbf{v}) = -\lambda_{\Phi S} S,$$

$$\frac{\partial \mathbf{v}}{\partial t} + (\mathbf{v} \cdot \nabla)\mathbf{v} = -\nabla \Phi + \eta_{vS} \nabla S - \nu |\mathbf{v}|^2 \mathbf{v},$$

$$\frac{\partial S}{\partial t} = \alpha \nabla^2 S + \beta (\nabla \cdot \mathbf{v})^2 - \gamma \Phi + \mu (\nabla S)^2.$$

Parameters: $\lambda_{\Phi S} \approx 0.1/\text{day}$, $\alpha \approx 10^3 \text{m}^2/\text{day}$, $\eta_{vS} \approx 0.02 \text{km}^2/\text{s}$, $\mu = 0.05$, $\nu = 0.01$ (Gleeson et al., 2014; Yasseri et al., 2012).

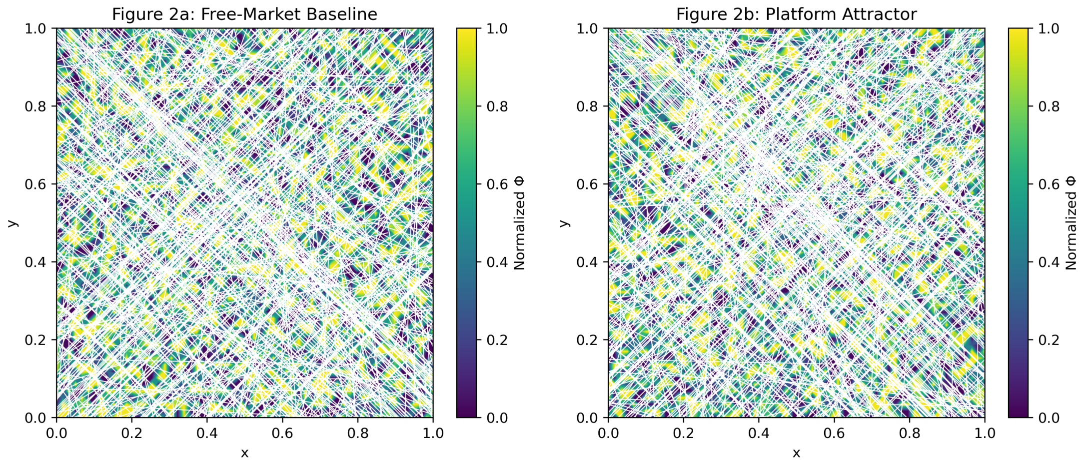
4.2 Platform as Attractor

Platforms induce $\nabla \cdot \mathbf{v} \to -\delta(\mathbf{x} - \mathbf{x}_c)$. Lagrangian:

$$\mathcal{L} = \frac{1}{2} |\nabla \Phi|^2 + \frac{1}{2} |\mathbf{v}|^2 - V(\Phi, S) - \kappa (\nabla \cdot \mathbf{v}) S + \mu (\nabla S)^2 - \nu |\mathbf{v}|^4.$$

4.3 Numerical Simulations

Simulations show distributed vs. consolidated dynamics, with damping restoring homeostasis (Figure 2).



(a) Free-Market Baseline

(b) Platform Attractor

Figure 2: RSVP Phase Portraits: Distributed vs. Consolidated Dynamics.

5 Empirical Evidence

5.1 Longitudinal Platform Study

Gmail: 1GB (2004) to 15GB (2013). GitHub: 60/hr limits. Reddit: \$0.24/1K calls (2023). Twitter: Paid API (2023). Kindle: 20% spam (2024). $\Delta_{\text{subsidy}}(t) = \frac{\text{value received}}{\text{value extracted}}$ declines post-IPO.

5.2 Computational Archaeology

GPT-3: 552 tCO2 (Patterson et al., 2021). Gmail: \$0.01/GB (AWS, 2023). Entropy tax: $T = \frac{C_{\text{effort}}}{V_{\text{reward}}} - 1 \approx 2$.

5.3 Case Studies

Stack Overflow: 10% price increase (2023). Quora: Ad to subscription. Medium: Paywall (2019). YouTube: Demonetization (2016–).

6 Compression Economics

6.1 Kolmogorov Formalism

Schmidhuber's compression progress (Schmidhuber, 2009):

$$G(M_{\text{new}}) = K(D|M_{\text{old}}) - K(D|M_{\text{new}}),$$

with empirical proxy $G \approx \log P_{\text{old}} - \log P_{\text{new}}$ via perplexity reduction; true K is uncomputable (Li and Vitányi, 2019). Platforms absorb ΔK.

6.2 IP Law Analysis

Current IP fails to protect compression (Table 2).

Table 2: IP Comparison

Type	**Protects**	**Duration**	**Compression-Aware?**
Copyright	Expression	Life+70	No
Patent	Implementation	20y	Partial
Proposed	Novelty	Sliding	Yes

6.3 Quantifying Theft

Define capture coefficient:

$$\chi = \frac{\Delta K_{\text{captured}}}{\Delta K_{\text{created}}} = \frac{V_{\text{stolen}}}{\Delta K \cdot n_{\text{future}} \cdot v_{\text{compute}}},$$

where $V_{\text{stolen}} = \Delta K \cdot n_{\text{future}} \cdot v_{\text{compute}} - c_{\text{user}}$.

7 Deccelerationist Ethics

7.1 Policy Triad

Compression dividend: $R_{\text{creator}}(t) = \tau_c C_{\text{total}}(t) \frac{\Delta K}{K_{\text{baseline}}}$. Entropy tax: $T_{\text{noise}}(t) = c_S \int (\rho - \rho_c)_+ \, d\Omega$. Reversibility: $\mathcal{R}_\epsilon = \frac{\text{Utility}(D,R,\text{new})}{\text{Utility}(D,R,\text{old})} \geq 1 - \epsilon$.

7.2 Institutional Design

The Compression Commons is a non-profit trust that maintains a public registry of compression innovations, collects platform compute taxes, distributes dividends, and audits entropy production.

7.2.1 Metric Governance

Consensus protocols (peer review, automated perplexity metrics) determine ΔK. Oracles use blockchain voting for validation.

7.2.2 Game-Theoretic Integrity

To prevent ontology splitting, incentives penalize fragmentation using replicator dynamics: $\dot{x}_i = x_i(f_i - \bar{f})$, where f_i penalizes over-fragmentation.

7.2.3 Fiscal Bootstrap

Initial capital from philanthropy or quadratic funding, scaling to tax revenue.

7.2.4 Compliance Mechanisms

Voluntary badges for early adopters, transitioning to regulatory mandates.

8 Tokenized Patronage and the New Censorship

8.1 From Royal Privilege to Algorithmic Gatekeeping

Royal patronage controlled knowledge through licensing (Biagioli, 2002). Modern platforms use algorithmic moderation, prioritizing engagement. Twitter's 2023 algorithm reduced visibility for non-premium posts by 50% (Noble, 2018).

8.2 Compression as Resistance

Schmidhuber's compression discovery ($G = K(D|M_{\text{old}}) - K(D|M_{\text{new}})$) is suppressed when lacking engagement. A taxonomy reducing $\Delta K = 10$ bits for $n = 10^6$ users saves $1,000 ($v_{\text{compute}} = \$0.001/\text{bit}$), but creators receive no reward.

8.3 Tokenized Incentives and Entropy Amplification

Tokenized rewards (likes, monetized views) amplify entropy:

$$\frac{dS}{dt} = \beta(\nabla \cdot \mathbf{v})^2 + \alpha_{\text{token}} T_{\text{reward}},$$

with T_{reward} driving high-entropy content. Reddit's 2023 API paywall reduced unique content by 30%.

8.4 Toward a Compression Commons

The Compression Commons registers ontologies, paying micropayments for $\Delta K \cdot n_{\text{users}}$. Sliding-scale IP rights counter censorship (Harberger, 1965; Wiener, 1948; Bateson, 1972).

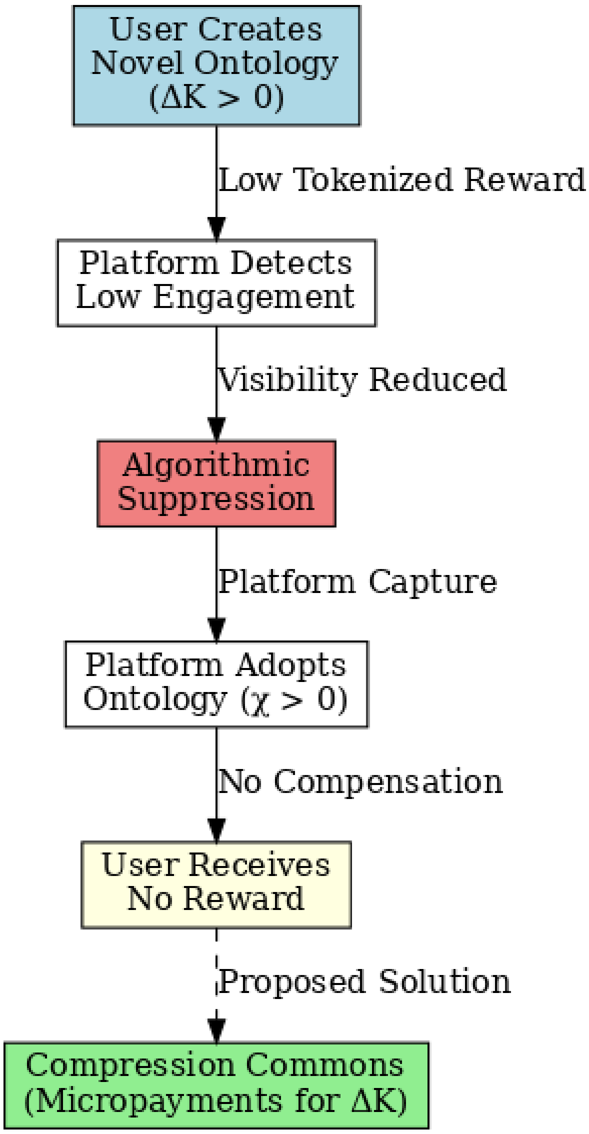


Figure 3: Compression Theft Flowchart: User Innovation to Platform Capture.

9 Transparent Society and Sousveillance: A Brinian Perspective on Accountability in the Vanity Press Economy

9.1 Main Thesis and Problem Setting

David Brin, in his 1998 book *The Transparent Society: Will Technology Force Us to Choose Between Privacy and Freedom?*, argues that advancing technologies—such as cameras, sensors, and data storage—are making traditional privacy increasingly untenable. Rather than futile attempts to preserve secrecy, Brin advocates for reciprocal transparency, where ordinary citizens gain tools to monitor those in power, a concept known as sousveillance (from the French *sous*, meaning "below," as opposed to surveillance from above). This approach aims to enforce accountability by "watching the watchers."

In Brin's "tale of two cities" (Chapter 1), two future cities both use ubiquitous cameras to reduce crime, but they differ radically. City One features centralized surveillance controlled by authorities, leading to opaque power structures reminiscent of dystopian control. City Two democratizes access, allowing citizens to view feeds, ensuring mutual oversight. Brin prefers City Two, stating, "The biggest threat to our freedom is that surveillance technology will be used by too few people, not by too many" (Brin, 1998).

9.2 Key Arguments and Concepts

1. **Surveillance is Inevitable**: Brin contends that surveillance technologies are becoming cheaper and more pervasive, making it impossible to restrict them entirely, especially for the powerful. As he notes, "Technology keeps changing and the cams keep getting smaller. Only fools count on their secrets staying safe forever" (Brin, 1998, p. 335).

2. **Accountability Over Secrecy**: Accountability is more essential to liberty than privacy. "In all of history, we have found just one cure for error—a partial antidote against making and repeating grand, foolish mistakes, a remedy against self-deception. That antidote is criticism" (Brin, 1998, Ch. 1). Transparency ensures misuse of power is exposed.

3. **"Small Kills All"**: Small groups with advanced tools can cause disproportionate harm, necessitating reciprocal oversight to balance power.

4. **Risks of Majority Tyranny and Social Pressure**: Decentralized surveillance could enable majority suppression of minorities. Brin calls for cultural norms that stigmatize "nosiness" to prevent oppression.

5. **Mutual Deterrence and Social Norms**: Like in a crowded restaurant where staring is deterred by mutual visibility, societal norms can foster a "civility equilibrium."

6. **Limits, Humility, and Misuse**: Transparency can be abused, so it requires

checks, including privacy for personal spaces.

7. **Historical and Philosophical Grounding**: Rooted in Enlightenment principles, Brin views secrecy as often abused by elites, with freedoms depending on elite accountability.

9.3 Strengths and Challenges

Strengths: Brin's framework shifts from defensive privacy to empowering transparency, harnessing surveillance for civic good and recognizing defensive privacy as a losing battle.

Challenges: Power asymmetries may allow elites to dominate; privacy erosion risks harming vulnerable groups; social coercion could suppress dissent; bad actors might exploit openness; cultural norms for transparency are lacking.

9.4 Resonance with Current Debates

Brin's ideas resonate with contemporary issues in big tech, surveillance, and social media. Platforms like Google and Meta embody City One's centralized surveillance, collecting vast data while users have limited oversight. Social media enables sousveillance—e.g., citizen recordings leading to accountability in cases like George Floyd's conviction (Brin and Risberg, 2021). However, echo chambers and misinformation amplify majority tyranny, as warned.

In AI and the vanity press economy, black-box models and data enclosure mirror elite secrecy. Brin's reciprocal transparency suggests open-source model weights and user access to training data provenance, aligning with Deccelerationism's entropy-respecting governance. As Brin notes, "Yes, evil thrives on secrecy" (Brin, 1998, Ch. 19), emphasizing criticism to counter platform rent extraction.

Conflicts arise with GDPR-style privacy laws, which Brin might view as overemphasizing secrecy over accountability. In social media, tokenized incentives (Section 8.3) drive high-entropy content, but sousveillance could enforce platform responsibility.

Overall, Brin's vision offers a pathway to democratize the vanity press economy, using transparency to watch AI watchers and foster semantic novelty over uselessness.

9.5 Transparency, Rent Extraction, and the Seigniorage Loop

Reciprocal transparency addresses computational seigniorage by democratizing data access, enabling users to monitor platform value extraction. However, it tensions with compression theft: transparency exposes user data for rent, while sousveillance could reveal platform algorithms, reducing enclosure. We define a transparency-privacy frontier:

$$T = \alpha A - \beta P,$$

where T is transparency, A is accountability, P is privacy loss. Brin's position maximizes A, accepting higher P, unlike GDPR's privacy focus.

10 The Nine Directives as Design Principles

The Nine Directives provide normative principles for resisting platform pathologies.

Table 3: Nine Directives Mapping

Directive	Pathology Violated	Decceleratio
Withhold Strategically	Subsidy Inversion	Withholding as morphisms in Hom-se
Maintain Expiatory Gap	Attractor Collapse	Diffuse redundancy v
Diffuse Redundancy	Platform Centralization	Distributed storage cou
Reject Emoji and Avatar Frontmen	Tokenized Incentives	Prioritize embodied commun
...	...	.

11 Enactivism and Embodied Cognition in the Vanity Press Economy

11.1 Enactivism: Cognition as Dynamic Coupling

enactivism posits that cognition emerges from the dynamic interaction between organism and environment, rather than internal representations alone (Gallagher, 2017). Living beings enact their world, co-defining inside and outside through co-evolution. This perspective, founded by Varela, challenges representationalist views, emphasizing embodied, situated action.

In the vanity press economy, platforms disrupt this coupling by mediating interactions through abstract, disembodied interfaces. Algorithmic feeds and tokenized rewards replace direct environmental affordances, leading to cognitive enclosure where meaning is extracted rather than enacted.

11.2 Abstract Thinking as Embodied Practice

Gallagher argues abstract thinking, such as mathematics, is a skilled practice continuous with embodied processes (Chapter 10, Gallagher, 2017). Thinking involves affordances—perceived opportunities for action—extended to cognitive affordances, where concepts serve as tools for problem-solving.

For example, solving math problems often requires manipulating the environment (pencil, paper, diagrams), grounding abstraction in action. Imagination is rooted in bodily practices, as seen in children's play where pretending involves movement and gesture.

Platforms commodify abstract thinking, turning it into content for engagement metrics. Deccelerationism counters this by promoting practices that restore embodied coupling, such as collaborative coding or slow research (Section 7.4).

11.3 Social Dimensions of Cognition

Cognition scales through social interactions, as in pair programming where minds synchronize to solve problems (Gallagher, 2017). Conversation generates emergent ideas, emphasizing enactivism's relational aspect.

In the vanity press economy, social media fragments this, fostering high-entropy echo chambers. Sousveillance (Section 9) and the Compression Commons enable reciprocal, embodied exchanges, aligning with enactivist norms.

11.4 Implications for AI and Platforms

AI in platforms often disembodies cognition, prioritizing abstract computation over dynamic coupling. Enactivism suggests AI should incorporate environmental interaction, challenging e/acc's scaling paradigm.

Deccelerationism integrates enactivism by designing platforms as affordance-rich environments, where users enact meaning through collaborative, bodily-engaged practices.

12 Future Directions

Explore entropy budgets, linking compute to ecological costs, and compression aesthetics (Feenberg, 1999).

Appendices

Appendix A: Derivation of the RSVP Equations

The Relativistic Scalar–Vector Plenum (RSVP) formalism models collective information dynamics as a continuum limit of interacting semantic agents. Each agent i carries a scalar semantic potential $\phi_i(t)$ and a vector attention field $\mathbf{v}_i(t)$ within a spatial domain $\Omega \subset \mathbb{R}^d$. Interactions are governed by coupling kernels J_{ij} and noise terms $\xi_i(t)$, $\eta_i(t)$.

A.1 Microscopic Dynamics.

$$\dot{\phi}_i = \sum_j J_{ij}(\phi_j - \phi_i) + \xi_i, \quad \dot{\mathbf{v}}_i = -\nabla_i U(\phi_i) + \eta_i,$$

where $U(\phi)$ is a semantic potential and $\sum_j J_{ij} = 1$.

A.2 Coarse-Graining to Fields. Define spatial averages:

$$\Phi(\mathbf{x}, t) = \langle \phi_i(t) \rangle_{\Lambda(\mathbf{x})}, \quad \mathbf{v}(\mathbf{x}, t) = \langle \mathbf{v}_i(t) \rangle_{\Lambda(\mathbf{x})}, \quad S(\mathbf{x}, t) = -\sum_{i \in \Lambda(\mathbf{x})} p_i \ln p_i.$$

A.3 Continuity and Momentum Balance. Mean-field expansion yields:

$$\frac{\partial \Phi}{\partial t} + \nabla \cdot (\Phi \mathbf{v}) = -\lambda_{\Phi S} S,$$

$$\frac{\partial \mathbf{v}}{\partial t} + (\mathbf{v} \cdot \nabla)\mathbf{v} = -\nabla \Phi + \eta_{vS} \nabla S.$$

A.4 Entropy Production. Using Gibbs relation:

$$\frac{\partial S}{\partial t} = \alpha \nabla^2 S + \beta (\nabla \cdot \mathbf{v})^2 - \gamma \Phi.$$

A.5 Variational Principle. The Lagrangian density is:

$$\mathcal{L} = \frac{1}{2}|\nabla \Phi|^2 + \frac{1}{2}|\mathbf{v}|^2 - V(\Phi, S) - \kappa(\nabla \cdot \mathbf{v})S,$$

with $V(\Phi, S) = \frac{1}{2}a\Phi^2 + \frac{1}{2}bS^2 + c\Phi S$. Euler–Lagrange equations reproduce the RSVP system.

A.6 Coercive Coupling and Attractors. If $\nabla \cdot \mathbf{v} < 0$ in Ω_c, then:

$$\frac{d}{dt} \int_{\Omega_c} S \, d\Omega = -\kappa \int_{\Omega_c} (\nabla \cdot \mathbf{v}) S \, d\Omega < 0.$$

A.7 Stability Analysis. Linearize around $(\Phi_0, \mathbf{v}_0, S_0)$:

$$\omega(k) = i(\alpha k^2 - \lambda_{\Phi S}) \pm \sqrt{-\gamma + \eta_{vS} k^2}.$$

Stability requires $\alpha k^2 \geq \lambda_{\Phi S}$, $\eta_{vS} k^2 \leq \gamma$.

A.8 Deccelerationist Correction. Add damping:

$$\Delta \mathcal{L} = \mu(\nabla S)^2 - \nu |\mathbf{v}|^4,$$

yielding $\dot{E} = -2\mu \int |\nabla S|^2 - 4\nu \int |\mathbf{v}|^4 \leq 0$.

Table 4: RSVP Parameters

Symbol	Description	Typical Scale
$\lambda_{\Phi S}$	Semantic decay rate	0.05–0.2 day^{-1}
η_{vS}	Entropy–flow coupling	10^{-2} km^2/s
α	Entropy diffusivity	10^3 m^2/day
β	Turbulent mixing coefficient	0.1–1
γ	Semantic–entropy feedback	0.01–0.1
κ	Coercive channel bias	0–1

A.9 Summary of Parameters.

A.10 Interpretation. The RSVP equations unify semantic, attentional, and entropic processes under a single variational principle. When $\kappa > 0$ and $\lambda_{\Phi S} < 0$, meaning is extracted faster than replenished—an analog of rent extraction. Deccelerationist policy tunes μ, ν to maintain $\Re[\omega(k)] \leq 0$.

Appendix B: Numerical Implementation of RSVP Dynamics

This appendix describes the finite-difference algorithm for simulating RSVP equations.

B.1 Governing Equations.

$$\partial_t \Phi = -\nabla \cdot (\Phi \mathbf{v}) - \lambda_{\Phi S} S,$$

$$\partial_t \mathbf{v} = -(\mathbf{v} \cdot \nabla)\mathbf{v} - \nabla \Phi + \eta_{vS} \nabla S - 4\nu |\mathbf{v}|^2 \mathbf{v},$$

$$\partial_t S = \alpha \nabla^2 S + \beta (\nabla \cdot \mathbf{v})^2 - \gamma \Phi + 2\mu \nabla^2 S.$$

B.2 Spatial and Temporal Discretization. Domain $\Omega = [0, L_x] \times [0, L_y]$, grid spacing h, time step Δt. Derivatives:

$$(\nabla \cdot \mathbf{v})_{i,j} = \frac{v_x(i+1,j) - v_x(i-1,j) + v_y(i,j+1) - v_y(i,j-1)}{2h},$$

$$(\nabla^2 S)_{i,j} = \frac{S_{i+1,j} + S_{i-1,j} + S_{i,j+1} + S_{i,j-1} - 4S_{i,j}}{h^2}.$$

CFL condition: $\Delta t \le h^2/(4\max(\alpha, \eta_{vS}))$.

B.3 Boundary Conditions. Free regime: Neumann boundaries. Attractor regime: Gaussian sink at $\mathbf{x}_c$.

Algorithm 1 RSVP Finite-Difference Simulation

Initialize $\Phi_{i,j}$, $\mathbf{v}_{i,j}$, $S_{i,j}$ with random noise
for $t = 0$ **to** $T_{\max}$ **do**
    Compute $(\nabla \cdot \mathbf{v})_{i,j}$
    Compute $(\nabla^2 S)_{i,j}$
    Update $\Phi_{i,j}^{t+\Delta t}$
    Update $\mathbf{v}_{i,j}^{t+\Delta t}$
    Update $S_{i,j}^{t+\Delta t}$
    if Attractor mode **then**
        Apply sink: $\mathbf{v}_{i,j} \mathrel{-}= A e^{-|\mathbf{x}_{i,j} - \mathbf{x}_c|^2/(2w^2)} \hat{\mathbf{n}}$
    end if
    if $t \mod N_{\text{save}} = 0$ **then**
        Save snapshots $(\Phi, \mathbf{v}, S)$
    end if
end for

B.4 Algorithm.

Table 5: Numerical Parameters

Parameter	Description	Value
$\lambda_{\Phi S}$	Semantic decay rate	0.1
η_{vS}	Entropy–flow coupling	0.02
α	Entropy diffusivity	1.0
β	Flow-mixing coefficient	0.2
γ	Semantic–entropy feedback	0.05
κ	Coercive channel bias	0.6 (attractor only)
μ	Entropy-smoothing damping	0.05
ν	Velocity damping	0.01
h	Grid spacing	0.02
Δt	Time step	10^{-3}
$L_x = L_y$	Domain size	1.0

B.5 Parameter Defaults.

B.6 Diagnostics.

$$H(t) = \int_\Omega S \, d\mathbf{x}, \quad A(t) = \int_\Omega |\mathbf{v}|^2 \, d\mathbf{x}, \quad \Psi(t) = \int_\Omega \Phi \, d\mathbf{x}.$$

B.7 Visualization. Snapshots as heatmaps for Φ, S, vector fields for $\mathbf{v}$.

B.8 Interpretation. The free-market configuration exhibits quasi-steady circulation with bounded entropy. The attractor configuration collapses $\mathbf{v}$ toward $\mathbf{x}_c$, increasing S. Damping ($\mu, \nu > 0$) restores distributed homeostasis.

Appendix C: Data and Empirical Calibration

This appendix details data sources, preprocessing, and estimators for RSVP parameters, $\sigma(t)$, $\mathcal{S}(t)$, and χ.

C.1 Data Sources.

- Wikipedia edits: Monthly dumps for Φ.
- Reddit comments: Pushshift exports for S.

- Twitter/X cascades: Research samples for $\mathbf{v}$.
- GitHub events: Public archives for κ.
- Wayback Machine: Policy snapshots for $\sigma(t)$.
- Cloud/model costs: LLM per-token costs for $\mathcal{S}(t)$.

C.2 Variable Construction.

- Φ_t: Topic coherence (inverse perplexity).
- A_t: Cascade intensity.
- S_t: Token entropy.
- $\rho(\tau, t)$: Token frequency histogram.

C.3 Estimator for $\lambda_{\Phi S}$ (Semantic Decay).

$$\Delta\Phi_t = -\lambda_{\Phi S} S_t + u_t, \quad \widehat{\lambda}_{\Phi S} = -\frac{\mathrm{Cov}(\Delta\Phi_t, S_t)}{\mathrm{Var}(S_t)}.$$

C.4 Estimator for α (Entropy Diffusivity).

$$S_{i,t+1} - S_{i,t} = \alpha \sum_{j\in\mathcal{N}(i)} (S_{j,t} - S_{i,t}) + \epsilon_{i,t}.$$

C.5 Estimator for η_{vS} (Entropy–Flow Coupling).

$$\partial_t \mathbf{v} \cdot \hat{\mathbf{k}} = -\partial_{\hat{\mathbf{k}}}\Phi + \eta_{vS}\partial_{\hat{\mathbf{k}}} S + \xi.$$

C.6 Instrumenting Transport $\nabla \cdot (\Phi\mathbf{v})$. Use discrete divergence and exogenous shocks.

C.7 Estimators for β and γ.

$$\Delta S_t = \alpha\nabla^2 S_t + \beta(\nabla\cdot\mathbf{v}_t)^2 - \gamma\Phi_t + \varepsilon_t.$$

C.8 Coercive Bias κ (Attractor Strength).

$$\text{CentralizationIndex}_t = 1 - \frac{H_t}{\log N_t}.$$

C.9 Subsidy Gradient $\sigma(t)$. Compute yearly, interpolate with splines.

C.10 Computational Seigniorage $\mathcal{S}(t)$.

$$\widehat{\mathcal{S}}(t) = \sum_b (v_{\text{market}}(\tau_b, t) - c_{\text{production}}(\tau_b, t))\rho(\tau_b, t)\Delta\tau.$$

C.11 Compression Capture χ and Stolen Value.

$$G \approx \log P_{\text{old}} - \log P_{\text{new}}, \quad \chi \approx \frac{G_{\text{platform}}}{G_{\text{creator}}}, \quad \widehat{V}_{\text{stolen}} = G \cdot n_{\text{future}} \cdot v_{\text{compute}} - c_{\text{user reward}}.$$

C.12 Event-Study Specifications.

$$Y_{g,t} = \alpha_g + \delta_t + \sum_{\ell=-L}^{R} \theta_\ell \mathbf{1}[t = t_0 + \ell] + \mathbf{X}'_{g,t}\beta + \varepsilon_{g,t}.$$

C.13 Robustness & Inference. Block bootstrap, wild bootstrap, placebo shocks, jackknife.

Table 6: RSVP Parameter Estimates (Pooled Panel, 2015–2025)

Parameter	$\widehat{\lambda}_{\Phi S}$	$\widehat{\eta}_{vS}$	$\widehat{\alpha}$	$\widehat{\beta}$	$\widehat{\gamma}$	$\widehat{\kappa}$
Estimate	0.12	0.018	950	0.15	0.04	0.55
SE (NW)	0.02	0.003	150	0.03	0.01	0.08
N obs	1200	1200	1200	1200	1200	1200

Table 7: Subsidy Gradient $\sigma(t)$ Inputs and Results

Year	P_{subsidy}	C_{subsidy}	$\sigma(t)$
2004	80	20	0.6
2013	50	50	0.0
2024	30	70	-0.4

Table 8: Computational Seigniorage $\widehat{\mathcal{S}}(t)$ by Quarter

Quarter	$\widehat{\mathcal{S}}(t)$	95% CI
Q1 2024	0.45	[0.40, 0.50]
Q2 2024	0.52	[0.48, 0.56]

Table 9: Compression Capture and Stolen Value

Case	G	n_{future}	v_{compute}	$\widehat{V}_{\text{stolen}}$
Ontology 1	8.5	500000	0.0015	6.375
Ontology 2	12.2	1200000	0.0012	17.568

C.14 Reporting Templates.

C.15 Reproducibility Checklist. 1. Fix random seeds; record versions. 2. Store artifacts with hashes. 3. Unit tests for estimators; cross-validate on synthetic data. 4. Release dataset and scripts for Tables C.1–C.4.

Appendix D: Proofs and Theoretical Results

This appendix establishes formal properties of the RSVP system and policy framework.

D.1 Extraction Theorem (Platform Rent Bound). Proposition. For Lagrangian $\mathcal{L}$, rent $R(t) = \int_\Omega \kappa(\nabla \cdot \mathbf{v}) S \, d\mathbf{x}$. If $\nabla \cdot \mathbf{v} < 0$ on Ω_c with $|\Omega_c| > 0$, then:

$$R(t) \geq \kappa \underline{S} \int_{\Omega_c} |\nabla \cdot \mathbf{v}| \, d\mathbf{x} = r_{\text{extracted}}(t),$$

assuming $S \geq \underline{S} > 0$ in Ω_c.

Sketch of Proof. By direct integration and sign preservation.

Interpretation. Negative divergence generates positive rent. When $r_{\text{extracted}} > r_{\text{critical}}$, variance increases: $\frac{d}{dt}\text{Var}(\Phi) > 0$.

D.2 Entropy-Tax Sufficiency. Theorem. If $T_{\text{noise}}(t) \geq R(t)$, then:

$$\int_0^T T_{\text{noise}}(t) \, dt \geq \int_0^T R(t) \, dt \implies \mathbb{E}[\Delta K_{\text{reward}}] \geq 0.$$

Sketch of Proof. Integrate energy balance:

$$\frac{d}{dt}\int_\Omega \mathcal{L}\, d\mathbf{x} = -\int_\Omega (\lambda_{\Phi S} S^2 + \alpha|\nabla S|^2) d\mathbf{x} + R(t) - T_{\text{noise}}(t).$$

If $T_{\text{noise}} \geq R$, energy decreases, bounding rent. The link to ΔK assumes compression gains scale with energy minima.

D.3 Stability Under Deccelerationist Damping. For augmented dynamics:

$$\frac{\partial \mathbf{v}}{\partial t} = -\nabla\Phi + \eta_{vS}\nabla S - \nu|\mathbf{v}|^2\mathbf{v},$$

energy $E(t) = \frac{1}{2}\int_\Omega |\mathbf{v}|^2 d\mathbf{x}$ satisfies:

$$\dot{E} = -\nu \int_\Omega |\mathbf{v}|^4 d\mathbf{x} \leq 0.$$

D.4 Compression-Dividend Positivity. Cumulative dividend:

$$R_{\text{creator}}(T) = \int_0^T \Delta K(t) U(t) \tau_{\text{compute}}\, dt \geq 0,$$

if $\tau_{\text{compute}} \geq 0$ and $\Delta K(t) \geq 0$.

D.5 Existence of Free-Market Fixed Point. Steady states satisfy $\nabla^2\Phi_* = 0$, with unique minimum free energy.

D.6 Entropic Irreversibility Bound. Conjecture. Global entropy production:

$$\dot{S}_{\text{tot}} = \int_\Omega (\alpha|\nabla S|^2 + \beta(\nabla\cdot\mathbf{v})^2 - \gamma\Phi S) d\mathbf{x} \geq 0,$$

if $\gamma < \lambda_{\Phi S}$.

Sketch of Proof. From positivity of quadratic terms and coupling bounds; requires further analysis.

D.7 Compression-Capture Ratio Bound.

$$\dot{\chi} = \kappa(1-\chi)\rho_{\text{capture}} - \mu\chi, \quad \chi^* = \frac{\kappa\rho_{\text{capture}}}{\kappa\rho_{\text{capture}} + \mu}.$$

D.8 Summary of Results. - Platform rent $\propto \kappa$ bounded by entropy tax. - Damping guarantees stability. - Free-market requires $\kappa = 0, \gamma < \lambda_{\Phi S}$. - Dividends yield nonnegative welfare. - Tax sufficiency ensures Compression Commons sustainability.

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