RECOMPOSABLE FRAGMENTATION:
A FIELD-THEORETIC CRITIQUE OF THE CLIP ECONOMY

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Abstract. The dominance of short-form media clips is not a cultural preference but a structural phase transition in the physics of communication. We model the clip economy as a driven dissipative field system within the Relativistic Scalar–Vector Plenum (RSVP) framework, identifying engagement potential as a scalar field Φ, distributional flux as a vector field $\mathbf{v}$, and context-loss as an entropy production term S. The clip economy is not merely turbulent; it is *strategically overdriven*: the vector field decomposes into a transport component $\mathbf{v}_{\text{trans}}$ and an occupation component $\mathbf{v}_{\text{occ}}$ that performs territorial saturation of the attentional manifold. Coherence is not lost passively but is *actively selected against*, since compositional structure constitutes impedance drag in the transport layer. We sharpen the central diagnostic: the pathology is not fragmentation *per se* but *non-recomposable* fragmentation—the production of units whose monoidal composition yields no coherent global section. Against this we define *admissible fragments*: units that are locally transmissible yet carry explicit reconstruction data back to their origin manifold. The system of all such fragments, organised by a *controlled projection layer* and governed by an *admissibility grammar*, constitutes an alternative field attractor $(\Phi', \mathbf{v}', S')$ in which global compatibility is not erased by transport. We prove that this alternative is not merely philosophically preferable but dynamically competitive: any coherence-preserving substrate must re-route the existing energy flow rather than attempt to suppress it.

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1. Introduction: A Phase Transition in Communication

Short-form media is not new. The theatrical trailer, the newspaper headline, and the radio spot have always co-existed with longer compositional forms. What is new—and what demands a structural rather than cultural account—is the inversion of ontological priority: the clip has ceased to be a promotional teaser for a longer work and has become the *primary unit of consumption and monetisation* in its own right.

This inversion is documented with precision in the economics of contemporary streaming. Platforms now sustain enormous apparent reach through clip circulation entirely decoupled from the originating content. A streamer may maintain a live audience in the tens of thousands while generating billions of monthly views through clips distributed by coordinated human and automated clipping operations. The "clipping army" is not an external marketing layer; it is structural to the content architecture. Creators optimise their output so that any thirty-second window is locally self-sufficient and algorithmically transmissible. Legacy media organisations are correspondingly advised to treat decades of archival footage not as a library of finished works but as a *reservoir of extractable moments*.

The standard cultural critique focuses on attention spans, reading rates, and social isolation [24, 27]. These concerns may be warranted, but they are empirically contested and theoretically imprecise. The more tractable claim is structural: the clip economy changes the *unit of meaning*. Long-form content functioned as a semantic container in which coherence was internally enforced—contradictions had to be resolved, arguments had to close, narratives had to stabilise. In the clip regime this enforcement is externalised to the algorithm, which selects for local engagement without requiring global consistency [30, 29].

The result is what we call *semantic torsion*: a media field that is locally smooth—every clip makes sense in the moment—but globally incompatible, in the sense that the collection of clips circulating from any given source does not compose into a recoverable whole. The term is chosen deliberately: torsion in differential geometry measures the failure of parallel transport to preserve orientation [4]. A fragment understood at one point in the field, and again at another, cannot be consistently embedded in a single global frame without contradiction or amnesia.

This essay offers a formal account of these dynamics and derives from that account a positive proposal: the system of *admissible fragments*, organised by a controlled projection layer and governed by an admissibility grammar, constitutes an alternative attractor that is dynamically competitive rather than merely philosophically preferable.

> **Central thesis.** The pathology of the clip economy is not fragmentation but *non-recomposable* fragmentation: the production of units optimised for terminal consumption rather than structured recombination. The alternative is not to restore long-form continuity but to enforce recomposability constraints on the fragment itself.

The argument proceeds as follows. Section 2 introduces the field model. Section 3 shows the system is strategically overdriven via the occupation tensor. Section 4 proves the non-integrability of popularity in the atomic limit. Section 5 analyses the phenomenological consequences. Section 6 introduces the monoidal structure of recomposable fragmentation. Section 7 classifies the principal fragment failure modes. Section 8 defines admissible fragments formally. Section 9 formalises the admissibility grammar. Section 10 describes the controlled projection layer. Section 11 develops topological spaced repetition and the Spherepop substrate. Section 12 specifies the alternative attractor. Section 13 proves competitive viability. Section 14 closes with the strategic reframing.

2. The Clip Economy as a Field System

We model the clip economy through a coupled scalar–vector–entropy triple $(\Phi, \mathbf{v}, S)$. The framework is motivated by the treatment of driven dissipative systems in [11, 13]: like those systems, the clip economy maintains nonequilibrium structure through continuous energy injection rather than settling to a thermal ground state.

Definition 2.1 (Media field)**.** Let Ω denote the attentional manifold: the space of possible positions in the distributional network. The *scalar engagement potential* $\Phi(u) \in \mathbb{R}_{\geq 0}$ measures the probability of momentary capture per unit exposure; in the clip regime Φ is not a measure of meaning or sustained attention but only the likelihood of a swipe-stop or click, and is maximised by units requiring zero prior context. The *vector distributional flux* $\mathbf{v}(u) \in T_u\Omega$ encodes the direction and magnitude of propagation through the network, supplied by algorithmic amplification and human clipping operations. The *entropy* $S(u)$ measures the context-loss introduced by extracting u from its source work, in the information-theoretic sense of [6, 7]; high S correlates with high transmissibility because stripped context reduces the cognitive load required to consume the fragment.

Let $\mathcal{I}(\mathbf{v})$ denote the energy injected by clipping operations, $\mathcal{D}(\Phi)$ the natural decay of engagement potential through attention fatigue, $\mathcal{N}(\Phi)$ the nonlinear algorithmic amplification rewarding high-Φ fragments, $\mathcal{E}(\Phi)$ the rate of context destruction per unit propagation, and $\mathcal{R}$ the sparse global-synthesis attempts by individual consumers. The field dynamics are governed by the coupled system

$$\partial_t \Phi = \mathcal{I}(\mathbf{v}) - \mathcal{D}(\Phi) + \mathcal{N}(\Phi), \tag{1}$$

$$\partial_t S = \mathcal{E}(\Phi) - \mathcal{R}. \tag{2}$$

The key asymmetry captured by (2) is that $\mathcal{E}$ is large and continuous—every act of clipping destroys some context, and by Landauer's principle this erasure is thermodynamically irreversible [8]—while $\mathcal{R}$ is sparse and energetically costly. Global sections therefore fail to form not because they are impossible but because the rate of fragmentation structurally exceeds the rate of recomposition.

Proposition 2.2. *In a field governed by (1)–(2), entropy is a competitive advantage: stripping context from a unit u increases $\Phi(u)$ by reducing the reconstruction burden on receivers, expanding the viable receiver population and increasing the magnitude of $\mathcal{N}(\Phi)$.*

Sketch. Context encodes dependencies. Dependencies impose reconstruction requirements that raise the effective cognitive load per unit [23], reducing the population of receivers willing to engage. A context-free fragment admits a maximal receiver population; under $\mathcal{N}$, monotone in the receiver population, this yields maximal $\partial_t \Phi$. □

The clip economy is therefore not malfunctioning. It is a stable attractor under a particular objective function. Coherence is not lost through carelessness; it is actively designed out of the production process to maximise flow through the transport layer.

3. From Turbulence to Field Capture: The Occupation Tensor

A first-pass account treats the clip economy as semantically turbulent: local vortices of engagement spin up and dissipate without coupling to a global structure, in the pattern described by [14] for self-organised critical systems. This is correct but insufficient. The more precise description is that the system is *strategically overdriven*: it does not merely distribute high-Φ fragments, it actively suppresses competing signals by saturating the available attentional bandwidth.

Coordinated clipping operations seed thousands of variants of the same content across discovery algorithms. The goal is not efficiency of transmission but *coverage*: the occupation of as many coordinates in clip-space as possible [32, 31]. Creators and their agents monitor whether a given coordinate is occupied; if it is not, it will be filled adversarially or stochastically. The implicit logic is territorial: if you are not there, they will be.

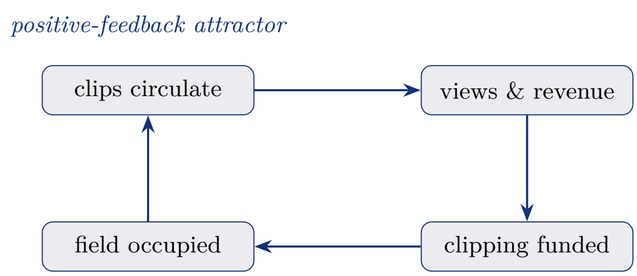
Definition 3.1 (Occupation tensor)**.** The distributional vector field decomposes as $\mathbf{v} = \mathbf{v}_{\text{trans}} + \mathbf{v}_{\text{occ}}$, where $\mathbf{v}_{\text{trans}}$ is the *transport component* moving a specific fragment from source to receiver, and $\mathbf{v}_{\text{occ}}$ is the *occupation component* filling attentional bandwidth to suppress competing signals.

The occupation component introduces exclusion dynamics that have no analogue in passive network diffusion models [34, 33]. When $\|\mathbf{v}_{\text{occ}}\|$ is large, the background signal density rises until low-Φ, high-coherence content is filtered as noise. The selection pressure is not merely *for* high-Φ fragments; it is actively *against* the compositional structure that would allow a global section to form.

Proposition 3.2. *In a field with strong occupation dynamics, compositional structure functions as* impedance drag*: a unit whose internal context requirements are high is mismatched to the transport layer and will be outcompeted by units with lower context requirements, even when the high-context unit carries greater semantic content.*

Pre-emptive fragmentation—engineering content as a sequence of clip-ready spikes rather than a continuous argument—is therefore an impedance-matching solution: shaping Φ so that it survives advection under $\mathbf{v}$ while tolerating high S. In the language of Virilio's dromology [26], speed of circulation has become the governing constraint, and coherence is precisely what slows things down.

The financial energetics explain the system's stability. The injection term $\mathcal{I}(\mathbf{v})$ is directly subsidised by economic incentives at scale: clipping operations are funded as a line item, not a side effect. The resulting reinforcement forms a positive-feedback attractor [12]—clips generate views and revenue, revenue funds further clipping, clipping increases field occupation, and occupation increases the probability of viral excitations—and because the system is externally subsidised, individual withdrawal does not meaningfully reduce system energy.



4. The Atomic Limit and Non-Integrability of Popularity

The clip economy admits a limiting case in which the fragment approaches a single perceptual frame. This limit clarifies the structural collapse of recomposability and formalises the empirical observation that within the clip economy a view is a view—popularity is treated as a purely additive quantity amenable to straightforward aggregation, in the manner of a frequency count rather than a measure on a structured space.

Definition 4.1 (Atomic fragment)**.** An *atomic fragment* is a fragment f such that $\operatorname{supp}(f) \to 0$ in both temporal and contextual extent while $\Phi(f)$ remains finite.

In this limit, reconstruction becomes impossible by construction. The fragment contains no internal structure to support a recovery map ρ_f: there is no source interval to cite, no prior argumentative state to reference, no dependency graph to traverse. The fragment is pure signal in the Shannon sense [6]—a symbol stripped of the pragmatic redundancy that would allow error correction or source reconstruction.

Proposition 4.2 (Non-integrability of popularity)**.** *Let $\{f_i\}$ be a collection of atomic fragments generated from a source manifold $\mathcal{M}$. Then no finite measure μ on $\mathcal{F}$ exists such that*

$$\int_{\mathcal{F}} f_i \, d\mu \;\cong\; \mathcal{M}.$$

Sketch. Atomic fragments erase ordering and dependency relations. The integral reduces to a multiset of disjoint observations. Since $\mathcal{M}$ requires non-commutative composition (Definition 6.1), no measure preserving that structure exists: integration smears the very non-commutativity that encodes the source geometry [3, 1]. □

Popularity defined as aggregate view count is therefore constitutively blind to the property that matters most for coherence preservation. The integral diverges not in the numerical sense but in the structural sense—the limit yields a flat multiset rather than the curved manifold from which the fragments were extracted. Any metric of success built on additive view aggregation cannot detect whether the fragments it is counting are admissible or terminal. The "filter bubble" described in [30] is a downstream symptom of exactly this structural blindness: a system optimised for additive engagement necessarily fails to track whether the accumulated engagements compose into anything coherent.

5. Semantic Torsion and the Phenomenology of Global Failure

The field analysis of Sections 2–4 is external. It describes the mechanics of the clip economy from the perspective of an observer mapping the field. There is an internal dimension that the field equations alone do not capture: the experience of inhabiting a system in which global coherence never stabilises.

Definition 5.1 (Semantic torsion)**.** A cognitive trajectory $\gamma \colon [0, T] \to \mathcal{M}$ exhibits *semantic torsion* if the parallel transport of local interpretive frames along γ fails to close: a fragment understood at time t_1 and again at time t_2 in a different distributional context cannot be embedded in a single consistent global frame without contradiction or amnesia.

The term echoes holonomy in differential geometry [4]: traversing a loop in the field and returning to the starting point, one finds the frame has rotated by an irreducible angle. In the individual, this manifests as the experience of encountering the same argument across different clip contexts and finding that each encounter produces an incompatible local interpretation.

The transition from engagement to burnout to apathy traces a characteristic trajectory in $\mathcal{M}$. Burnout is not a failure of effort; it is the accumulation of semantic torsion beyond a recovery threshold. In field terms, burnout corresponds to a state of high Φ, high $\|\mathbf{v}\|$, and unstable S: the individual is still coupled to the flow but cannot integrate it. Han's account of the "burnout society" [27] describes exactly this phenomenology at the social scale—a culture that maximises performance output while destroying the coherence structures that would make performance meaningful. Apathy corresponds to a collapse of coupling: the individual decouples from $\mathbf{v}$ entirely, achieving local stability at the cost of forward-directed coherence. Apathy is therefore not the opposite of passion but its exhausted form, a distinction made structurally precise by the Franklian observation [36] that the loss of meaning is not an affective event but a failure of the narrative trajectory that organises action over time.

Observation 5.2. Semantic torsion is not a pathology of individual attention capacity but a structural consequence of inhabiting a field with large $\|\mathbf{v}_{\text{occ}}\|$ and minimal $\mathcal{R}$. It is not addressable by exhortations to focus or curate but only by modifying the field structure or by providing the individual with an auxiliary manifold that supplies the missing global frame.

The societal concern is therefore less about short attention spans in a simplistic sense and more about the erosion of *trajectory-based cognition*: the capacity to hold unresolved structure over time, whether in reading, reasoning, or relationships. Kahneman's distinction between System 1 and System 2 cognition [16] is relevant here not as a neural claim but as a structural one: the clip economy continuously rewards fast, closure-seeking processing and continuously fails to provide the conditions under which slow, structure-building processing can operate. If most inputs are fragments optimised for immediate resolution, the cognitive practice of maintaining open structure as a condition of eventual synthesis [18] becomes less exercised. This does not imply neurological damage, but it implies a shift in which cognitive skills are reinforced by the ambient field.

6. Recomposability: The Structural Diagnosis

The analysis so far identifies what the clip economy destroys. The central diagnostic concept—the one that enables a positive proposal—is *recomposability*. The pathology is not that fragments are short; it is that they are non-recomposable.

Definition 6.1 (Recomposable fragment system)**.** A collection of fragments $\{u_i\}$ is *recomposable* with respect to a source manifold $\mathcal{M}$ if it satisfies three conditions. *Extraction validity* (R1): each u_i retains meaning under extraction from $\mathcal{M}$. *Compositional gain* (R2): pairs $u_i \otimes u_j$ gain meaning—or at minimum do not lose meaning—under recombination. *Order sensitivity* (R3): the composition is non-commutative,

$$u_i \otimes u_j \neq u_j \otimes u_i \quad \text{in general,}$$

but both orderings remain meaningful, specifying a monoidal but non-symmetric structure [1, 2].

Order sensitivity (R3) preserves the trajectory structure of an argument or narrative: order matters without fully determining interpretation. This is the structure of jokes within a stand-up set, arguments within a conversation, and ideas circulating across interviews. Each of these evolved forms solved recomposability before the algorithm needed to, developing modular units, repeatable fragments, and flexible ordering while retaining narrative arc, speaker identity, and thematic continuity [31]. The clip economy extracts the first cluster of properties and discards the second.

Proposition 6.2. *The clip economy produces a degenerate fragment system satisfying (R1) but violating (R2) and (R3). Specifically, for typical clips f_i, f_j drawn from the same source,*

$$f_i \otimes f_j \;\approx\; f_i \sqcup f_j,$$

where $\sqcup$ denotes disjoint union: recombination yields juxtaposition without semantic gain, and the distinction between $f_i \otimes f_j$ and $f_j \otimes f_i$ is not structurally enforced.

This is the formal statement of semantic torsion at the algebraic level: locally admissible fragments whose monoidal product fails to recover the source geometry. Long-form media is not the opposite of clips; it is a *disciplined concatenation of recomposable clips under constraint*. The failure of the current ecosystem is that it discovered the unit but lost the discipline.

7. Failure Modes of Fragment Systems

To sharpen the admissibility condition it is useful to classify the principal ways in which a fragment system can fail to be recomposable. These failure modes correspond directly to phenomena observable in the clip economy: decontextualised quotation, ideological distortion, and algorithmically amplified misinterpretation [29, 28].

Definition 7.1 (Terminal fragment)**.** A fragment f is *terminal* if its recovery map is empty, $\rho_f \equiv \varnothing$. A terminal fragment resolves locally and admits no reconstruction path; it is designed to terminate traversal rather than trigger it.

Definition 7.2 (Drift fragment)**.** A fragment f exhibits *semantic drift* if repeated transport under $\mathbf{v}$ deforms its recovery map, $\rho_f^{(t)} \ncong \rho_f^{(0)}$. Each redistribution introduces a small perturbation to the implicit context in which f is received, and these perturbations accumulate; after sufficient circulation, f points to a manifold no longer isomorphic to the original source. The mechanism is structurally analogous to the accumulation of measurement error under repeated resampling [17].

Definition 7.3 (Adversarial fragment)**.** A fragment f is *adversarial* if its recovery map intentionally points to a manifold $\mathcal{M}'$ not isomorphic to the original source $\mathcal{M}$. An adversarial fragment exploits local admissibility to route receivers toward a different global section than the one from which f was ostensibly extracted.

Proposition 7.4. *The clip economy maximises terminal fragments and tolerates drift and adversarial fragments as long as* Φ *is preserved. The selection mechanism operates entirely on local engagement potential and is structurally blind to recovery map integrity.*

The practical implication is that a high-Φ adversarial fragment is indistinguishable from a high-Φ admissible fragment within the clip economy's fitness function. Any sufficiently coherent source manifold that circulates via terminal or drift fragments will eventually be replaced, in the attentional field, by adversarial reconstructions that it cannot correct from within the same transport layer. The strength of weak ties [35] that would ordinarily diffuse adversarial content is here exploited by the occupation component $\mathbf{v}_{\text{occ}}$: the same bridging connections that spread information across social clusters serve equally well to propagate adversarial recovery maps without any mechanism to flag the distortion.

8. Admissible Fragments: A Formal Definition

We now define the class of fragments that satisfy the recomposability conditions of Definition 6.1 while remaining transmissible in the existing clip-economy transport layer.

Definition 8.1 (Admissible fragment)**.** Let $\mathcal{M}$ be the source manifold and let $\pi\colon \mathcal{M} \to \mathcal{F}$ be a projection to a space of distributable fragments. A fragment $f \in \mathcal{F}$ is *admissible* if it satisfies three conditions simultaneously. *Local transmissibility* (A1): f is interpretable without reference to $\mathcal{M}$ by a receiver with minimal background, achieving a viable $\Phi(f)$. *Global recoverability* (A2): f carries a recovery map $\rho_f\colon \mathcal{F} \dashrightarrow \mathcal{M}$ such that $\rho_f(f)$ recovers the fibre $\pi^{-1}(f)$ up to a specified tolerance; concretely, f encodes its source interval, prior argumentative context, subsequent context, speaker commitments, and known contradiction points. *Compositional compatibility* (A3): if f_1, f_2 are admissible fragments from the same region of $\mathcal{M}$, then ρ_{f_1} and ρ_{f_2} extend to a common local section. The admissibility condition is therefore:

$$\text{fragment admissibility} = \text{local transmissibility} + \text{global recoverability}.$$

Condition (A1) is what the clip economy already delivers. What it systematically destroys are (A2) and (A3). A clip's projection π is *degenerate*: it maps many distinct regions of $\mathcal{M}$ to a single high-Φ fragment, making ρ_f ill-defined [5]. An admissible fragment, by contrast, functions as a *partial chart* of the source manifold—small and locally intelligible, yet carrying the transition maps needed to be glued to adjacent charts, in precise analogy to the atlas construction in [4].

Definition 8.2 (Holomorphic chart condition)**.** An admissible fragment f satisfies the *holomorphic chart condition* if the recovery map ρ_f is locally injective and its Jacobian preserves the orientation of the local section of $\mathcal{M}$, so that the fragment not only points back to the source but does so in a way that respects the internal order structure of the argument.

The crucial design inversion concerns tension. A mainstream clip resolves tension immediately because resolution maximises Φ by matching the fast-closure preference of System 1 processing [16]. An admissible fragment must instead *stabilise tension without resolving it.* The signature of a correctly constructed admissible fragment is the cognitive state: *this statement is precise, but I can see that it is not self-sufficient.* This is reconstruction pressure—a specific form of incompleteness creating motivation to retrieve adjacent fragments without generating mere confusion. In the predictive processing framework of [18, 19], it corresponds to a calibrated prediction error: large enough to drive further sampling, small enough not to trigger disengagement.

Proposition 8.3 (Return probability)**.** *An admissible fragment f generates a return probability*

$$p_{\text{return}}(f, \sigma) = 1 - \exp\bigl(-\lambda\, |\partial f \setminus \sigma|\bigr),$$

where σ is the receiver's current covered region of $\mathcal{M}$, ∂f is the set of fragments adjacent to f in the source dependency graph, and $\lambda > 0$ measures the receiver's sensitivity to structural incompleteness. When $|\partial f \setminus \sigma|$ is large, $p_{\text{return}} \to 1$: the fragment is an opening rather than a terminus.

Dense admissible fragments act as *sinks* in the vector field $\mathbf{v}$, drawing attention back toward the global section rather than releasing it into the stream. This is the structural analogue of the information foraging behaviour described in [20]: a fragment with high "information scent"—a strong cue that valuable related content exists—produces greater dwell and follow-through than one that exhausts its informational budget on first encounter.

9. The Admissibility Grammar

The set of all admissible fragments is not merely a collection; it has the structure of a generative system. We formalise this as a grammar, emphasising that the system's role is not archival—recording which fragments happen to satisfy admissibility after the fact—but *generative*: specifying the allowable space of circulating units in advance.

Definition 9.1 (Admissibility grammar)**.** An *admissibility grammar* is a triple $\mathcal{G} = (\Sigma, R, \tau)$ where Σ is a set of primitive constraints on fragment form, R is a set of composition rules specifying how admissible fragments may be combined, and τ assigns transition maps between adjacent fragments encoding their mutual reconstruction obligations. A fragment f is admissible in $\mathcal{G}$ if and only if it is derivable under R from elements of Σ and satisfies Definition 8.1.

The grammar $\mathcal{G}$ plays the role that the controlled projection layer plays architecturally: it is the middle tier between the global theoretical system and the circulating unit. Where the clip economy has no such middle tier—fragments are admitted or rejected by Φ alone—the grammar enforces structural constraints on every emitted unit before it enters the field. The formalism is analogous to the typed calculi studied in [2], in which morphisms carry explicit information about their source and target objects.

Theorem 9.2 (Closure under composition)**.** *If f_1 and f_2 are admissible fragments generated by $\mathcal{G}$, then $f_1 \otimes f_2 \in \mathrm{Im}(\mathcal{G})$.*

Proof. Closure of R under pairwise application ensures $f_1 \otimes f_2$ is derivable. Compatibility of transition maps τ ensures that the composition inherits a recovery map pointing to the intersection of the fibres of ρ_{f_1} and ρ_{f_2} in $\mathcal{M}$, which is non-empty by condition (A3) of Definition 8.1. □

Theorem 9.2 means that the admissibility property is not fragile under circulation: two admissible fragments composed by a receiver produce an admissible result, not a terminal one. The grammar is self-reinforcing; a field populated primarily by admissible fragments will tend to remain so, because compositions of admissible fragments are themselves admissible.

The grammar also makes precise the sense in which each unit should be written. A traditional proof is optimised for internal coherence, assuming a reader willing to traverse the full argument [3]. An admissible proof has an additional constraint: it must contain at least one *projection-stable invariant*—a statement that survives extraction and carries a trace of its dependencies. Not a slogan and not a summary, but a minimal fixed point of the argument. Instead of writing Constraint, then Local Result, then Proof, then Conclusion in a single sealed unit, the admissible form writes Constraint, then Local Result, then Boundary of Validity, then Pointer Outward—a structure that looks less like a finished system and more like a field of stable partial structures, each of which creates reconstruction pressure toward the next.

10. The Controlled Projection Layer

The design of admissible fragments requires a structural intermediate between the global theoretical system and the circulating unit. We call this the *controlled projection layer*. Its existence is not hypothetical; it has been discovered empirically, through practice, in high-density learning systems.

Consider the acquisition of a language through flashcard systems, or the compression of a university course into Cornell-style cheat sheets. These are already clipping systems. Each card or note is small, locally intelligible, and rapidly transmissible. Yet they behave entirely differently from the clip economy because they preserve dependency structure. A flashcard is not merely a fragment; it is a fragment with an implicit reconstruction rule. Encountering an Arabic morphological pattern or a Spanish verb conjugation activates not a terminal engagement event but a network of relations: grammar, phonology, prior exposures, syntactic constraints. The fragment is small; it is anchored to a latent structure.

Example 10.1 (Flashcards as partial charts)**.** In a well-designed flashcard system [21, 22], each card (q, a) functions as a local chart of the knowledge manifold $\mathcal{M}$: the question q identifies a coordinate, the answer a provides the local section, and the system's dependency graph encodes the transition maps between adjacent charts [5]. Learning the system amounts to internalising the atlas. The learner does not need to hold the textbook in working memory; the textbook is reconstructed through the *geometry of recall*.

The key distinction is directional rather than dimensional. Atomisation does not destroy coherence when each unit is a pointer into a latent network of relations. What is required is that the network be explicitly designed and that units be assigned positions within it.

The controlled projection layer is the middle tier of a three-tier structure $\mathcal{M}_0 \supset \mathcal{M}_1 \supset \mathcal{M}_2$, where containment is informational rather than spatial.

Definition 10.2 (Three-tier manifold)**.** The *global tier* $\mathcal{M}_0$ is the fully articulated theoretical system—the textbook, formal treatise, or complete derivation—which defines the global geometry: all objects, all morphisms, all commutative diagrams [1]. The *structural tier* $\mathcal{M}_1$ is the layer of structured compression: cheat sheets, conceptual maps, dependency graphs, preserving the relational skeleton of $\mathcal{M}_0$ in compact form with objects retained and derivations compressed to transition maps. The *iterable tier* $\mathcal{M}_2$ is the layer of circulating units—flashcards, clips, threads—each locally intelligible and each carrying a pointer into $\mathcal{M}_1$.

The clip economy collapses $\mathcal{M}_1$. The global tier exists; the iterable tier exists; the middle layer that would provide transition maps between them has been eliminated. Fragments at $\mathcal{M}_2$ lose their

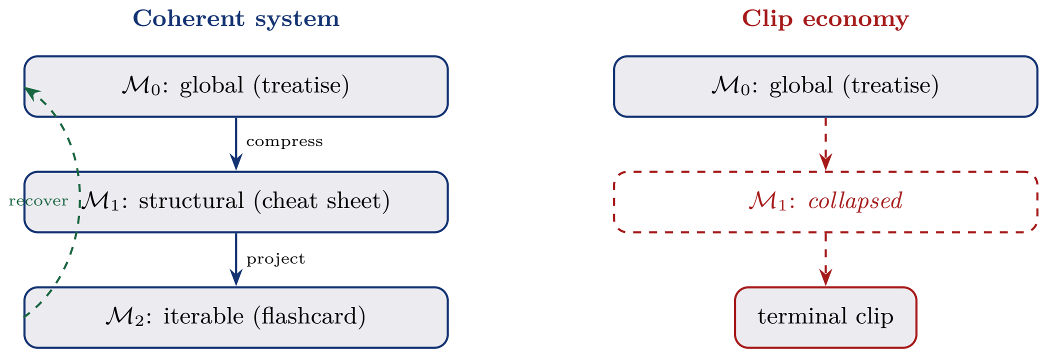


FIGURE 1. Left: the three-tier manifold, in which the structural tier $\mathcal{M}_1$ provides recovery maps closing the loop from iterable units back to global theory. Right: the clip economy collapses $\mathcal{M}_1$, severing admissibility conditions (A2) and (A3). The controlled projection layer is precisely $\mathcal{M}_1$.

pointers and remain locally intelligible while the recovery map ρ_f has no target structure to map into. The result is what Postman diagnosed as the degradation of the "typographic mind" [24], but what can now be specified more precisely: not a cultural regression but the removal of the tier at which compositional constraints are enforced.

11. Topological Spaced Repetition and the Spherepop Substrate

The three-tier manifold suggests a reinterpretation of spaced repetition in topological rather than temporal terms. Standard systems such as Anki and SuperMemo [21] schedule repetition by *temporal decay*: items are re-surfaced when recall probability falls below a threshold, treating forgetting as the primary obstacle. The empirical literature on distributed practice [22] confirms the advantage of spaced over massed review, but the scheduling principle remains temporal, independent of the geometric structure of the knowledge manifold.

Definition 11.1 (Coverage state)**.** Let $\sigma \subset \mathcal{M}_1$ denote the learner's current covered region: the submanifold of the structural tier that the learner has successfully integrated into a locally consistent global section.

Definition 11.2 (Boundary scheduling)**.** A fragment $f \in \mathcal{M}_2$ is scheduled for re-presentation when $\partial f \cap (\mathcal{M}_1 \setminus \sigma) \neq \varnothing$, that is, when at least one fragment adjacent to f in the dependency graph has not yet been integrated into σ.

Proposition 11.3. *Boundary scheduling minimises reconstruction error faster than temporal decay scheduling for any nontrivial dependency graph.*

Sketch. Temporal scheduling ignores structural adjacency and may re-present items whose neighbours are already well-integrated—yielding redundant exposure—or defer items whose neighbours have an open boundary, missing the highest-information-gain opportunity. Boundary scheduling targets exactly the edges of the dependency graph missing from σ, maximising expected semantic gain per unit of learner effort, in the sense made precise by information foraging theory [20]. □

Repetition is driven not by forgetting alone but by the geometry of the theory being learned. A fragment is re-presented not because time has elapsed but because the learner's covered region has a specific gap that the fragment is positioned to close. Minimal guidance approaches [23] fail partly because they provide no mechanism for tracking which gaps exist; boundary scheduling supplies exactly this tracking.

The natural computational substrate for boundary scheduling is an irreversible-event calculus in which each event consumes nested relational structure and leaves a permanent trace, recording not merely what was encountered but in what order and from which direction. This allows the system to compute boundary membership—which fragments lie on the frontier of σ—without maintaining a separate forgetting model. The learner's current state is not a snapshot but a trajectory, and the set of available next events depends on the full sequence of prior events. The thermodynamic irreversibility of each learning event is not incidental but structural [9, 10]: it is precisely because the events cannot be undone that the trajectory they define has determinate content.

The dynamics of constraint accumulation in such a system connect to the field description of Section 2 through the following result.

Theorem 11.4 (Field emergence from constraint accumulation)**.** *Let $\{C_n\}$ be a sequence of constraint accumulations in an irreversible-event system governed by the primitives of irreversibility, accumulation, compatibility, and flow. As the lattice spacing $\epsilon \to 0$, the constraint density $\rho_n = |C_n|/\epsilon^d$ satisfies*

$$\partial_t \rho + \nabla \cdot (\rho\, \mathbf{v}) = \sigma,$$

where $\mathbf{v}$ is the local constraint-propagation velocity and σ is a source term corresponding to external inputs. This is the scalar sector of the field equations of Section 2.

Sketch. The discrete accumulation satisfies a conservation law, since each event resolves exactly one open boundary segment. Taylor expansion in ϵ yields the continuity equation, a standard coarse-graining argument in the spirit of [11, 15]. The identification of σ with the scalar source follows from interpreting unresolved boundary as scalar field gradient. □

The learner therefore does not receive the field equations as axioms but discovers them as the natural continuum analogue of the discrete constraint system already internalised. The more-is-different principle of [15] applies: the field description is not merely a rescaling of the discrete system but a genuinely new level of description, with emergent phenomena not visible at the unit level. The theory arrives as recognition rather than imposition.

12. The Alternative Attractor

The foregoing analysis allows us to specify the alternative attractor precisely. It is not "restore long-form media" and it is not "reduce clips." It is a field configuration $(\Phi', \mathbf{v}', S')$ satisfying three conditions simultaneously: local admissibility remains high enough to propagate through the existing transport layer, so $\Phi'(f) \geq \Phi_{\min}$ for all circulating fragments; global compatibility is not erased by transport, so the composition $f_i \otimes f_j$ recovers a section of $\mathcal{M}_1$ for all admissible pairs; and the entropy production rate is bounded, $\partial_t S' \leq \kappa$, for some constant κ determined by the reconstruction capacity $\mathcal{R}$.

The alternative attractor is not a retreat from the clip layer but a re-routing of the existing flow through a manifold that enforces constraint closure [13, 12]. The clipping army, understood as a distributed pump, is not dismantled; its output is redirected through fragments that carry their own reconstruction data.

The producer operating under this constraint is not producing clips or textbooks. They are defining a *strategic functor*

$$\mathcal{F} \colon \text{Coherent System} \to \text{Fragment Space}$$

with the property that every fragment carries a left-inverse—or at minimum a homotopy back—to its source [1, 5]. The clip economy uses a degenerate version, $\mathcal{F}_{\text{clip}}\colon \text{Anything} \to \text{High-}\Phi$ fragment, with no inverse, no structure preservation, and no obligation to recombine. The correct strategic sequence is therefore:

$$\text{Coherent Work} \xrightarrow{\text{define}} \text{Controlled Projection Layer} \xrightarrow{\text{emit}} \text{Field Circulation.} \tag{3}$$

Without the middle step, the projection happens anyway—but without the producer's constraints. The coherent system becomes raw material for the very fragmentation it was designed to resist, as Debord's analysis of the spectacle anticipates [25]: the image circulates freely precisely because it has been severed from the conditions of its production. The alternative scaling strategy is therefore not volume → saturation but *consistency* → *accumulation*: the same admissible fragments appear across different contexts, gradually building a coherent basin of attraction through the weak-tie diffusion described in [35], but now channelled through admissible recovery maps rather than terminal projections.

13. Energetic Competition and Field Stability

The alternative attractor must be not only formally coherent but energetically viable. Any coherence-preserving system that cannot sustain injection comparable to the clip economy will be overwhelmed by the existing flow rather than competing with it [11, 12].

Definition 13.1 (Field stability)**.** An attractor $(\Phi', \mathbf{v}', S')$ is *dynamically stable* if

$$\frac{d}{dt}\int_{\Omega} \Phi' \, d\Omega \;\geq\; 0$$

under perturbations induced by the clip economy field, maintaining or increasing its total engagement potential against the competing flow.

Theorem 13.2 (Competitive viability)**.** *An admissible fragment system is dynamically stable if and only if*

$$\mathcal{I}(\mathbf{v}') \;\geq\; \mathcal{I}(\mathbf{v}_{clip}) - \epsilon$$

for some bounded $\epsilon > 0$.

Sketch. If injection falls below the competing field by more than ϵ, the occupation dynamics of $\mathbf{v}_{\text{occ}}$ dominate: background signal density rises until high-coherence units are filtered as noise and the admissible fragment system collapses into terminal fragmentation. Conversely, if injection is within ϵ of the competing field, the return-probability mechanism of Proposition 8.3 produces a self-sustaining basin: each admissible fragment draws receivers back, supplying a secondary injection channel that compensates for any deficit in the primary flow. The argument follows the basin-of-attraction analysis in [12], applied to the two-attractor competition between $\mathbf{v}$ and $\mathbf{v}'$. □

Theorem 13.2 makes precise why coherence-preserving systems must re-route the existing flow rather than reject it. A system that refuses to participate in the clip layer—no matter how formally coherent—will be outcompeted by the occupation dynamics of $\mathbf{v}_{\text{occ}}$ and become invisible in the attentional field. The upper bound on computational and physical resources available to any information-processing system [10] applies here as well: there is a finite attentional budget, and a system that does not compete for it cedes it entirely.

This also clarifies the relationship between a textbook-first production strategy and the controlled projection layer. Building the global tier $\mathcal{M}_0$ first is accumulation of potential energy; when projection eventually occurs, the density of the admissible fragments is sufficient to create field sinks that the clip economy cannot produce—units that reward deeper traversal, create recurring curvature in the field rather than one-time spikes, and gradually build a coherent basin of attraction through consistency rather than through volume. These are genuinely different attractors, and Theorem 13.2 identifies the minimum injection condition that separates them.

14. Conclusion: Fragments That Cannot Be Fully Consumed

The clip economy discovered the unit but lost the discipline. It solved the problem of transmissibility at the cost of recomposability. The result is a media environment in which meaning is local, popularity is non-integrable, and trajectory-based cognition is systematically under-rewarded.

The framework developed in this essay constitutes a complete formal system. At the ontological level, the field triple $(\Phi, \mathbf{v}, S)$ models the clip economy as a driven dissipative system with occupation dynamics [11, 13]. At the algebraic level, the monoidal structure of Definition 6.1 distinguishes recomposable from non-recomposable fragmentation [1, 2]. At the logical level, the admissibility grammar $\mathcal{G}$ generates the allowable space of circulating units and closes under composition (Theorem 9.2). At the dynamical level, the field stability theorem (Theorem 13.2) proves the minimum injection condition for competitive viability [12]. At the computational level, the irreversible-event substrate and topological spaced repetition supply the mechanism for constraint accumulation and boundary-driven scheduling [9, 10], and the field equations emerge from that substrate in the continuum limit (Theorem 11.4) [15, 11].

Final formulation. Long-form media is not the opposite of clips. It is a disciplined concatenation of recomposable clips under constraint. The failure of the current ecosystem is that it discovered the unit but lost the discipline. The project of recomposable fragmentation is to restore that discipline in a form that can survive modern transport—not by refusing the field, but by introducing into it a different geometry.

This requires defining a new class of object: a fragment that cannot be fully consumed without becoming something else—either expanded, revisited, or recontextualised. Such a fragment is fundamentally incompatible with the clip economy's dependence on terminal consumption, yet compatible with the transport layer because it achieves a viable $\Phi(f)$. It does not refuse the field; it introduces a different geometry into it.

The unit of meaning, on this account, is not the clip, the article, or the theory itself, but the *trajectory of constraint integration* that unfolds over time in a mind that has encountered enough admissible fragments to triangulate the source manifold. What the controlled projection layer produces is not knowledge transferred but knowledge made recoverable: the conditions under which a coherent structure can be reconstructed within the minds of its participants, even when those participants encounter it one admissible fragment at a time.

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