

# Escape Velocity: Austerity, Field Dynamics, and the Endogenous Regulation of Transformation

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## Abstract

This essay develops a structural account of austerity as a mechanism for the endogenous regulation of escape velocity within constrained dynamical systems. Drawing on Clara Mattei's historical reconstruction of interwar austerity in Britain and Italy, and formalizing the analysis within a coupled field representation  $X(x, t) = (\Phi, \mathbf{v}, S)$ , the essay argues that austerity does not merely restrict resources but raises the transition threshold separating the existing economic configuration from alternative regimes of evolution. The three components of the field—structural constraint and resource distribution  $\Phi$ , directed agency  $\mathbf{v}$ , and configurational accessibility  $S$ —are shown to be jointly reconfigured by austerity policy, such that the approach toward coordinated exit activates compensatory transformations that restore inaccessibility. The essay further argues that this coupling implies the systematic failure of piecemeal emancipatory strategies, which the system absorbs through its stabilizing feedback before any single component can leverage transformation across the others. A phenomenological bridge demonstrates that what presents as individual incapacity is the localized signature of a global field configuration. The concluding sections generalize the argument to a broader class of dynamical systems capable of endogenous threshold regulation, instantiated in both interwar austerity and contemporary platform economies. The framework abstracts from symbolic mediation and agent heterogeneity and is offered as a structural model rather than a literal mapping, clarifying the conditions under which the difficulty of transformation is dynamically rather than statically imposed. The final section introduces a relational operator framework for coordinated transformation, formalizing the dynamical condition under which threshold reduction becomes possible.

# 1 Escape Velocity as a Structural Threshold in Political Economy

The concept of escape velocity is typically defined as the minimum energy required for a body to exit a gravitational potential well without further propulsion. In the present analysis, this concept is not employed metaphorically but structurally. Any constrained dynamical system admits basins of attraction within which trajectories evolve under admissibility conditions determined by the system's underlying field configuration. Escape velocity, in this generalized sense, denotes the minimum coherent transformation required for a trajectory to exit such a basin and enter an alternative regime of evolution. The relevance of this formulation to political economy is immediate: economic systems are not merely distributions of resources, but structured fields of constraint that delimit the space of realizable futures. Within such systems, the question is not whether alternative configurations exist in principle, but whether the conditions for transition into those configurations are dynamically attainable.

This distinction reframes the analysis of austerity. Conventional accounts treat austerity as a policy regime characterized by reductions in public expenditure, wage suppression, and the contraction of social provision. However, as argued by Mattei [1], austerity must be understood as a deliberate strategy for the preservation of social order under conditions of potential transformation. Its function is not exhausted by fiscal adjustment; rather, it operates as a mechanism for stabilizing a given economic configuration by restricting the feasibility of exit. In the present framework, this corresponds to an increase in the escape velocity of the system. Austerity does not eliminate alternative trajectories; it renders them dynamically inaccessible by raising the threshold conditions required for their realization. This perspective situates the analysis within a broader class of work on institutional persistence and path-dependent dynamics [4, 5], while departing from those accounts by treating reachability, rather than equilibrium selection, as the primary object of analysis.

To formalize this claim, consider a state-field representation of the economy as a coupled system  $X(x, t) = (\Phi, \mathbf{v}, \mathcal{S})$ , where  $\Phi$  encodes structural constraints and resource distributions,  $\mathbf{v}$  represents directed transport or agency within the system, and  $\mathcal{S}$  measures configurational accessibility, understood as the logarithmic volume of admissible future trajectories. A basin of attraction within this field corresponds to a regime in which trajectories are locally stable under the joint evolution of these components. Escape from such a basin requires not merely an increase in  $\Phi$  (resources), but a coordinated transformation across all three fields: sufficient potential to overcome structural barriers, coherent directional alignment to sustain movement, and an expansion of accessible configurations to permit alternative pathways.

Austerity acts simultaneously on each of these dimensions. It deepens  $\Phi$  by reinforcing structural asymmetries and concentrating control over resources; it fragments

$\mathbf{v}$  by disrupting collective forms of agency through precarity, unemployment, and institutional weakening; and it compresses  $\mathcal{S}$  by eliminating viable alternatives, thereby reducing the effective dimensionality of the economic field. The use of a field representation is heuristic but not arbitrary; it draws on analogies to continuous descriptions of complex systems [7, 6], in which coarse-grained variables capture collective dynamics without requiring micro-level specification. The combined effect is a nonlinear increase in escape velocity. Crucially, this increase does not require the explicit prohibition of alternative arrangements. It is sufficient that the energy, coordination, and coherence required to realize such arrangements exceed what agents within the system can collectively supply.

This perspective clarifies the historical timing of austerity regimes. As Mattei demonstrates [1], austerity emerges most forcefully in periods when existing constraints loosen and the space of admissible trajectories expands—moments characterized by heightened labor organization, democratic pressure, or post-crisis institutional fluidity. In such conditions, the effective escape velocity decreases, rendering systemic transformation more attainable. Austerity intervenes precisely at this juncture to reverse the trend, reimposing constraint and restoring the inaccessibility of alternative basins. The result is not a correction of economic imbalance, but a reconfiguration of the system’s dynamical landscape to ensure the persistence of a particular attractor.

The analysis developed here therefore shifts the focus of political economy from equilibrium states to transition thresholds. The central question is not which configurations are optimal or efficient, but which are reachable given the structure of constraints governing the system. Escape velocity provides a unifying concept for this inquiry, capturing the interplay between structure, agency, and possibility. By understanding austerity as a systematic elevation of this threshold, one can move beyond surface descriptions of policy and toward a deeper account of how economic systems regulate their own transformability.

## 1.1 Epistemic Status of the Formalism

The formal apparatus introduced in this essay is not intended as a predictive physical model in the strict sense. The field representation  $X = (\Phi, \mathbf{v}, \mathcal{S})$  provides a geometric organization of constraint, agency, and reachability rather than a fully specified dynamical system with empirically calibrated parameters. Its purpose is to clarify structural relations—particularly the distinction between existence and reachability of trajectories—rather than to derive closed-form solutions or conservation laws. Where formal expressions are introduced, they should be read as minimal constructions consistent with these relations, not as unique or complete specifications. The framework functions as a geometric theory of constrained transformation with a proposed dynamical extension; it does not import the authority of physical law, but borrows physical structure as a conceptual scaffold whose adequacy is to be judged by its organizing

power rather than its predictive precision. In this respect, the framework aligns with conceptual analyses that emphasize the limits of reductive modeling in complex systems [14, 16].

## 1.2 Domain of Definition and Configuration Space

The domain  $\Omega$  on which  $X(x, t)$  is defined is not to be interpreted as physical space. It is an abstract configuration manifold whose coordinates encode positions within an economic or institutional state space—distributions of resources, organizational configurations, or policy regimes. Spatial operators such as  $\nabla$  and  $\Delta$  therefore act on this configuration space rather than on geographic or physical coordinates. This distinction is essential: gradients of  $\Phi$  represent changes in constraint cost across institutional positions, divergence of  $\mathbf{v}$  measures the expansion or contraction of coordinated flow across the configuration landscape, and  $\nabla S$  encodes how accessibility varies as one moves through the space of possible arrangements. The analogy to physical fields is heuristic; the geometry is that of institutional possibility, not of matter in space.

## 1.3 Empirical Proxies and Approximation

While the fields  $(\Phi, \mathbf{v}, S)$  are defined abstractly, each admits approximate empirical proxies. Structural constraint  $\Phi$  may be approximated through measures of resource concentration, institutional rigidity, or inequality—for instance wealth distributions, regulatory barrier indices, or the asymmetric distribution of access to credit, legal recourse, or political influence. The vector field  $\mathbf{v}$  may be approximated through indicators of coordinated directional activity, such as union density, network alignment centrality, or sustained participation flows within collective institutions. Configurational accessibility  $S$  may be approximated through the dimensionality and reachability of institutional or policy pathways, for instance via entropy over observed policy transitions, variety of organizational forms in a sector, or the historical range of realized economic configurations in comparable periods. These proxies are imperfect and context-dependent; their role is not to fully instantiate the model but to anchor its components in observable quantities sufficient for qualitative verification and comparative case analysis.

## 2 Threshold Management in Practice: Interwar Britain and Italy

The interwar period provides a uniquely instructive setting in which to examine the dynamics of escape velocity as a structural threshold. In the aftermath of the First World War, both Britain and Italy experienced conditions under which the space of admissible economic and political trajectories expanded markedly. Wartime mobilization had disrupted established hierarchies, strengthened labor organization, and demonstrated

the capacity of the state to intervene directly in economic life. These developments did not merely produce crisis in the conventional sense; they reduced the effective escape velocity of the existing order by rendering alternative configurations more dynamically attainable. The subsequent imposition of austerity must therefore be understood not as a response to fiscal imbalance alone, but as a coordinated effort to restore the inaccessibility of these emergent trajectories.

In Britain, the reestablishment of monetary orthodoxy through the return to the gold standard, coupled with a sustained commitment to balanced budgets, functioned as a reconfiguration of the structural field  $\Phi$ . By fixing the currency to an external constraint and prioritizing financial stability over employment, policymakers effectively deepened the potential well within which economic activity was required to operate [1]. This deepening was not an abstract monetary adjustment; it imposed concrete limits on wage growth, public expenditure, and industrial policy, thereby reinforcing asymmetries in the distribution of resources and decision-making authority. At the same time, the management of unemployment operated directly on the vector field  $\mathbf{v}$ . Persistent joblessness, far from being treated as a transient inefficiency, was stabilized as a disciplinary mechanism that fragmented collective agency and weakened the capacity for coordinated movement across the economic field. The resulting trajectories were characterized by reduced coherence, as workers were compelled to navigate increasingly localized and precarious pathways.

The contraction of  $\mathcal{S}$ , understood as the logarithmic volume of admissible future trajectories, followed from these interventions. Alternative policy regimes—such as expansive fiscal programs, industrial planning, or more radical restructuring—were not formally prohibited, but they were rendered dynamically inaccessible through the combined effects of monetary constraint and institutional commitment. The narrowing of  $\mathcal{S}$  thus did not require explicit closure; it emerged from the tightening of admissibility conditions across the system. By the early 1930s, the British economy exhibited a high degree of path dependence, with trajectories effectively confined to a restricted subset of the previously expanded space of possibilities. The increase in escape velocity was therefore achieved through the coordinated manipulation of structural constraint, agency, and accessibility. It bears noting that unemployment discipline in Britain was coercive in effect even where it was not in form: institutional mediation did not reduce the compulsory character of the constraint on  $\mathbf{v}$ , but rather distributed it across a wider set of mechanisms that rendered its operation less legible as direct intervention.

A parallel, though institutionally distinct, process unfolded in Italy. The postwar period was marked by intense social conflict and a proliferation of alternative political and economic projects, including worker councils and demands for industrial democracy. These developments corresponded to a significant expansion of  $\mathcal{S}$ , accompanied by a temporary alignment of  $\mathbf{v}$  in the form of organized labor movements capable of sustained collective action [1]. The fascist consolidation of power can be understood,

in part, as a response to this reduction in escape velocity. However, the mechanisms through which the threshold was subsequently raised differed in form while converging in function.

Under fascist corporatism, the reorganization of economic life was effected through direct intervention in the vector field  $\mathbf{v}$ . Independent unions were dismantled and replaced with state-controlled institutions, thereby rechanneling agency into prescribed pathways that precluded autonomous coordination. This reconfiguration did not merely suppress dissent; it altered the directional structure of the economic field, ensuring that trajectories aligned with state-sanctioned objectives. Simultaneously, the regime imposed constraints on wages and labor mobility, contributing to a deepening of  $\Phi$  analogous to that observed in Britain, though achieved through more overtly coercive means.

The effect on  $\mathcal{S}$  was similarly restrictive. The elimination of institutional avenues for alternative organization, combined with the centralization of decision-making, drastically reduced the volume of admissible future trajectories. As in the British case, this reduction did not entail the logical impossibility of alternative configurations; rather, it ensured that the conditions required to realize them exceeded any feasible level of coordination or resistance within the system. The Italian economy thus became characterized by a high escape velocity, sustained through the continuous alignment of structural constraint and controlled agency.

What emerges from these analyses is not a simple equivalence between liberal and authoritarian regimes, but a deeper structural similarity in the management of transition thresholds. The austerity regimes analyzed by Mattei exhibit this property in historically specific form, placing them in structural continuity with other domains in which similar dynamics are observable. The specific instruments—monetary policy and unemployment discipline in Britain, corporatist restructuring and direct coercion in Italy—differed in their institutional expression, yet converged in their effect on  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$ . The expansion of admissible trajectories that characterized the immediate postwar period was systematically reversed, and the system was stabilized within a narrower basin of attraction.

This convergence is most clearly visible when the analysis is framed in terms of reachability rather than policy content. In each case, the decisive outcome was not the adoption of particular measures, but the restoration of a dynamical landscape in which alternative trajectories, though conceivable, were no longer attainable. The increase in escape velocity thus provides a unifying account of austerity across divergent institutional settings, capturing the manner in which economic systems regulate their own susceptibility to transformation.

### 3 The Phenomenology of Trajectory Tension

The formal characterization of high escape velocity regimes admits a corresponding phenomenological description. If the economy is represented as a coupled field  $X(x, t) = (\Phi, \mathbf{v}, \mathcal{S})$ , then the local experience of agents situated within that field reflects the constraints imposed by its global configuration. What appears at the level of individual experience as incapacity, indecision, or instability is, in this framework, the localized manifestation of trajectory tension: the mismatch between the set of conceivable futures and the dynamically reachable subset of those futures. This interpretation is consistent with accounts of constraint in complex adaptive systems, where global structure manifests locally as bounded agency rather than explicit prohibition [6]. The phenomenology of precarity is thus not an epiphenomenon but an index of the structure of the field itself.

In regimes where  $\Phi$  is deeply asymmetric, agents encounter persistent gradients that shape the cost of movement across the economic landscape. These gradients are not directly perceived as structural parameters; they appear instead as the felt difficulty of maintaining stability, the necessity of continuous adjustment, and the ever-present risk of downward displacement. The effort required to sustain even locally stable trajectories increases as the potential field deepens, producing a condition in which forward movement is experienced less as progression than as resistance to slippage. The subjective correlate of a deepened  $\Phi$  is therefore not merely scarcity, but a chronic intensification of effort relative to outcome.

The fragmentation of  $\mathbf{v}$  manifests as a breakdown in directional coherence at the level of lived time. Where collective agency is weakened, trajectories lose their alignment, and the capacity to sustain coordinated movement across extended horizons diminishes. This is experienced as the inability to plan beyond the short term, the erosion of continuity between present action and future state, and the proliferation of locally rational but globally inconsistent decisions. The field does not present itself as disordered; rather, it presents as a sequence of constrained choices, each of which is intelligible in isolation but fails to compose into a coherent trajectory. The result is a phenomenology of oscillation and interruption, in which movement is constantly initiated but rarely sustained.

The compression of  $\mathcal{S}$  further intensifies this condition by narrowing the space of perceived alternatives. Although the formal argument distinguishes between the existence and reachability of trajectories, this distinction collapses at the level of experience when the gap between them becomes sufficiently large. Futures that are formally admissible but dynamically inaccessible cease to function as actionable possibilities and instead appear as abstract or implausible. The subjective field contracts accordingly: options are experienced not as open but as foreclosed in advance, and decision-making occurs within a horizon that is both limited and rigid. The reduction of  $\mathcal{S}$  is thus lived as a contraction of the perceived action space, anchored in the material inaccessibility

of alternatives.

These components do not operate independently. The deepening of  $\Phi$ , fragmentation of  $\mathbf{v}$ , and compression of  $\mathcal{S}$  reinforce one another to produce a unified phenomenological condition. Increased effort without commensurate progress undermines the capacity to sustain directional coherence; fragmented trajectories reduce the ability to access alternative configurations; and the perceived absence of alternatives feeds back into the acceptance of existing constraints. The system is therefore experienced as both demanding and inescapable, not because agents lack capacity in any absolute sense, but because the field through which they move systematically converts capacity into maintenance rather than transition.

From within such a configuration, the distinction between structural constraint and individual limitation becomes difficult to sustain. The continuous failure of trajectories to extend beyond their local basin of attraction is registered as personal inadequacy, even though it arises from the global properties of the field. This misattribution is not incidental; it is a direct consequence of the localization of experience within a system whose governing dynamics are distributed. The phenomenology of trajectory tension thus completes the mapping between the formal model and lived reality: what the theory describes as high escape velocity appears, from the inside, as a pervasive but opaque limit on the capacity to move otherwise.

### 3.1 From Agents to Fields: Scale and Aggregation

The field representation abstracts from individual agents, but it does not deny their role. The fields  $(\Phi, \mathbf{v}, \mathcal{S})$  should be understood as coarse-grained aggregates over heterogeneous agents, institutions, and interactions. In this sense,  $\mathbf{v}$  does not represent any individual's intention but the emergent directional coherence of many agents whose local movements, when sufficiently aligned, constitute a collective force across the configuration space. Similarly,  $\mathcal{S}$  reflects the collective structure of accessible trajectories as shaped by institutional affordances, historical path dependencies, and the distribution of organizational resources, rather than individual perception or cognition. The abstraction is one of scale rather than ontology: micro-level dynamics are compressed into mesoscopic fields whose evolution encodes their aggregate effects without requiring that every individual act in concert. This coarse-graining is standard in continuum descriptions of complex systems; its application here carries the same interpretive caveat, namely that the field description is most reliable when individual heterogeneity averages out and least reliable at the boundaries of collective action where singular agents or events can shift the aggregate significantly.

## 4 Lowering the Threshold: Emancipatory Strategy as Field Inversion

The diagnostic framework developed in the preceding sections carries an immediate structural implication for emancipatory political economy. If austerity operates as a coordinated transformation of  $(\Phi, \mathbf{v}, \mathcal{S})$  that raises the escape velocity of the prevailing order, then any strategy oriented toward systemic transformation can only take the form of the structural inversion of that operation: flattening the potential field  $\Phi$ , restoring directional coherence to  $\mathbf{v}$ , and expanding the volume of admissible future trajectories encoded in  $\mathcal{S}$ . This is not a strategic preference but a constraint imposed by the architecture of the system itself. What the present analysis makes precise is that this inversion cannot be achieved component by component. The stability of high escape velocity regimes derives not from the independent strength of each constraint, but from their mutual reinforcement. A system in which  $\Phi$  is deepened,  $\mathbf{v}$  fragmented, and  $\mathcal{S}$  compressed is not merely the sum of three separate obstacles; it is a dynamically coupled configuration in which each component stabilizes the others against partial disturbance. Piecemeal emancipation, under these conditions, fails not by accident but by the structural logic of the system it confronts.

This claim can be made precise. The distinction that organizes the argument is between existence and reachability: the system permits the existence of alternative configurations while systematically suppressing their reachability, and it is this gap—not the absence of alternatives—that constitutes the effective barrier to transformation. Suppose that an intervention successfully expands  $\mathcal{S}$ —that is, that the volume of admissible future trajectories increases through, for instance, the introduction of new institutional possibilities or the articulation of previously suppressed alternatives. In isolation, such an expansion does not lower the escape velocity of the system if  $\Phi$  remains deeply asymmetric and  $\mathbf{v}$  remains fragmented. The newly admissible trajectories exist within the expanded configuration space, but the capacity to reach them is absent. Agency lacks the coherence required to sustain directional movement across the deepened potential barriers, and the structural asymmetries governing resource distribution continue to favor trajectories within the existing basin. The result is an expansion of conceivable futures without any corresponding increase in the reachability of those futures.

The same analysis applies symmetrically to interventions targeting  $\mathbf{v}$  or  $\Phi$  in isolation. A restoration of collective agency—through labor organization, democratic mobilization, or institutional rebuilding—increases the coherence of directional movement within the field but does not, by itself, overcome the depth of structural asymmetry or widen the space of accessible alternatives. Trajectories may become more coherently pursued without becoming more achievable, if the field through which they must travel remains deeply constrained. Similarly, redistributive policies that flatten  $\Phi$  without restoring  $\mathbf{v}$  or expanding  $\mathcal{S}$  may temporarily reduce structural asymmetry while leaving

agents without the organizational capacity to exploit the newly opened space. In each case, the system's compensatory dynamics tend to restore the original configuration, as the unmodified components continue to generate stabilizing feedback. This result parallels, in a different formal language, analyses of institutional lock-in and increasing returns [4], but extends them by specifying the cross-field coupling through which partial interventions are absorbed rather than accumulated.

This analysis has a significant implication for the historical record that Mattei surveys. The repeated failure of partial reform programs in the interwar period—and beyond—is not adequately explained by reference to political weakness, insufficient radicalism, or adverse circumstance. It follows from the structure of the problem. Wage gains secured without institutional expansion of  $\mathcal{S}$  were reversible through monetary adjustment. Democratic advances achieved without corresponding changes to  $\Phi$  were vulnerable to fiscal discipline. Organizational gains in  $\mathbf{v}$  that did not alter the structural field were fragmented by precarity and unemployment. The system did not need to defeat these interventions directly; it needed only to allow them to proceed in isolation, absorbing each perturbation within its existing stabilizing structure before returning to the high escape velocity attractor.

The implication for emancipatory strategy is correspondingly precise. Threshold reduction requires coordinated simultaneous transformation across all three fields. This is not a demand for comprehensive revolution as a prior condition of any change; it is a structural observation about the minimal coupling required to overcome compensatory feedback. The question becomes: what forms of intervention couple most efficiently across  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$  simultaneously? Historically, the moments that most closely approximate such coupling—when structural redistribution, organizational coherence, and institutional expansion advance together—are precisely the moments that Mattei identifies as triggering the most aggressive austerity responses. The imposition of austerity at those junctures can now be read as confirmation of the analysis: the system mobilizes its threshold-raising mechanisms most forcefully when the conditions for coordinated exit are genuinely approached.

This observation closes a conceptual loop within the framework. Austerity is not merely reactive; it is calibrated. Its intensity tracks the proximity of the system to the escape threshold, intensifying when all three components of the field approach simultaneous transformation and receding when partial interventions dissolve into piecemeal adjustment. The dynamical landscape is not static but actively managed, with the escape velocity being continuously recalibrated in response to the evolving configuration of the social field. Emancipatory strategy, understood in these terms, must account not only for the current threshold but for the system's capacity to raise it in response to advances. The target is not a fixed barrier but a moving one, subject to the same field dynamics that govern the trajectories it constrains.

What Mattei's historical reconstruction makes available, and what the present frame-

work formalizes, is therefore a theory of why transformation is difficult that does not rely on the inadequacy of agents or the impossibility of alternatives. The difficulty is structural and dynamical: it resides in the coupling between constraint, agency, and accessibility that austerity continuously reinforces. To lower the escape velocity is not to wish the barriers away but to act on all three fields with sufficient simultaneity and coherence that the system's compensatory mechanisms cannot isolate and absorb each intervention in sequence. The essay closes this section not with a program but with a structural clarification: the threshold exists, it is actively maintained, and its reduction requires a form of coordinated action whose conditions are precisely what austerity is designed to prevent.

#### **4.1 Gradual Transformation and Threshold Accumulation**

The distinction between existence and reachability does not imply that transformation must occur through a single discontinuous transition. Gradual reforms may accumulate by incrementally altering  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$  across extended time horizons, effectively lowering the escape threshold through sustained, coupled pressure rather than synchronized rupture. In such cases, what appears as continuous change at the level of policy may correspond, at the level of the field, to a slow deformation of the basin of attraction—its walls thinning, its floor rising—until the threshold becomes crossable under conditions that would previously have been insufficient. The present framework is therefore compatible with both punctuated and gradual transitions, depending on the temporal coupling of changes across the three fields and the rate at which the system's endogenous regulation can compensate. The critical structural constraint is not the speed of change but its coupling: reforms that accumulate in only one component remain vulnerable to absorption regardless of their duration, while reforms that maintain cross-field coherence over time may lower the threshold even without simultaneous action. This distinguishes the present account from simple simultaneity requirements: what fails is not gradual change as such, but decoupled change that allows the system to absorb each component before the others reinforce it. Historical cases of genuine incremental transformation—the expansion of labor rights, the construction of welfare state institutions, the gradual decommodification of certain goods—can be read, within this framework, as instances where coupling was maintained across components over sufficient duration to produce field-level deformation despite the absence of coordinated rupture.

## 5 Endogenous Threshold Regulation: A Structural Claim and Its Scope

The analysis developed in the preceding sections can now be generalized beyond the specific historical and institutional context of austerity. What has been shown is not merely that particular policy regimes raise the escape velocity of a system, but that certain classes of dynamical systems possess the capacity to regulate their own transition thresholds endogenously. This capacity introduces a second-order layer of dynamics: not only do trajectories evolve within a constrained field, but the constraints themselves adjust in response to the evolving configuration of those trajectories.

This observation can be formalized as a general proposition. Consider a dynamical system represented by a state-field  $X(x, t) = (\Phi, \mathbf{v}, \mathcal{S})$  with an associated escape threshold defined over its basins of attraction. If the system includes feedback mechanisms that couple the configuration of  $X$  to transformations of its own constraint structure, then the escape velocity becomes a function not only of the current state but of the system's proximity to coordinated exit. In such systems, the approach toward threshold conditions is itself a signal that activates compensatory transformations in  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$ , raising the barrier in proportion to the degree of alignment achieved. This recalibration is endogenous: it is produced not by external intervention but by the system's internal sensitivity to the conditions under which its own attractor becomes escapable. The resulting dynamics are characteristic of complex adaptive systems capable of feedback-driven constraint adjustment [8, 9], though the present formulation specifies the particular dimensions along which such adjustment occurs and why decoupled intervention fails to overcome it.

The resulting theorem may be stated informally as follows: any dynamical system capable of endogenous threshold regulation will tend to increase its escape velocity as a function of the proximity of coordinated exit. The significance of this claim lies in its shift of explanatory focus. The persistence of a given configuration does not require that alternative trajectories be absent or that agents be incapable; it requires only that the system possess sufficient sensitivity to the conditions under which those alternatives become reachable. Stability, in this sense, is maintained not by static constraint but by adaptive recalibration of the threshold itself. This observation is not unique to the present framework—homeostasis and path dependence are recognized properties of complex adaptive systems generally. The specific contribution of the tripartite decomposition is to identify which dimensions of the system are being recalibrated and in what order of coupling: it is not sufficient to note that systems resist change, but to specify that resistance operates through the joint reconfiguration of structural asymmetry, directional coherence, and configurational accessibility, and that these three dimensions reinforce one another in ways that make decoupled intervention systematically insufficient.

The austerity regimes analyzed by Mattei [1, 2] can thus be situated within this broader class. Their distinctive feature is not the presence of constraint per se, but the capacity to intensify constraint in response to the emergence of coordinated alternatives. This places them in structural continuity with other domains in which similar dynamics are observable, including platform economies that adjust visibility and access in response to user coordination, institutional systems that recalibrate rules in response to collective pressure, and epistemic environments that restructure admissibility conditions in response to the spread of alternative frameworks. In each case, the defining characteristic is not the prohibition of alternatives but the dynamic suppression of their reachability.

At the same time, the generalization proposed here must be understood as bounded. The field decomposition  $X = (\Phi, \mathbf{v}, \mathcal{S})$  provides a tractable representation of constraint, agency, and accessibility, but it abstracts from features that may be decisive in specific contexts. In particular, it does not directly encode symbolic mediation, heterogeneity of agents, or the reflexive transformation of the field through interpretation and meaning. Nor does the analogy to physical escape velocity imply a conservation law or a fixed metric structure; the quantities involved are not invariant under arbitrary transformations, and their empirical specification requires domain-specific interpretation. The framework therefore functions as a structural model rather than a literal mapping, capturing relations of coupling and feedback without exhausting the phenomenology of the systems to which it is applied.

These limitations do not undermine the central claim but clarify its scope. The theorem concerns the existence of a class of systems in which the difficulty of transformation is dynamically regulated, not statically imposed. Within such systems, the barrier to change is neither the absence of alternatives nor the incapacity of agents, but the continuous adjustment of the conditions under which alternatives become reachable. To identify this structure is to reframe the problem of transformation: not as the discovery of new possibilities, but as the coordinated alteration of a field that is actively organized to render those possibilities inaccessible.

The argument of this essay has been that austerity is one historically specific instantiation of this more general dynamic. Its significance lies not only in its immediate economic effects, but in its role as a mechanism for the endogenous regulation of escape velocity. By making this structure explicit, one can move beyond descriptive accounts of constraint toward a formal understanding of how systems maintain their own resistance to transformation, and under what conditions that resistance might, in principle, be overcome.

A final reflexive observation is warranted. The formalization developed in this essay is itself subject to the dynamics it describes. A structural model that accurately represents the conditions of reachability does not thereby lower the escape velocity of the system it analyzes; representation and reachability are distinct operations, and the gap

between them reproduces, at the level of theory, the same distinction between existence and access that austerity enforces at the level of economic life. The framework is offered in full awareness of this limit: to map the topology of a constraint is not to dissolve it, and any claim that formalization itself constitutes emancipatory practice would reproduce the very  $\mathcal{S}$ -compressing substitution the theorem identifies.

### 5.1 Continuity of Constraint: Austerity, Liberalism, and the Fascist Threshold

The general theorem of endogenous threshold regulation permits a further clarification of the relationship between austerity and fascism as reconstructed by Mattei and extended in recent critical literature. Rather than treating fascism as an exceptional rupture within an otherwise liberal order, this framework suggests that both can be situated within a common class of systems defined by their capacity to regulate escape velocity in response to the emergence of coordinated alternatives.

As emphasized by Mattei [1] and developed in subsequent analysis, the austerity programs of interwar Europe were not merely compatible with liberal economic orthodoxy but were, in significant respects, derived from it. The apparent opposition between liberalism and fascism at the level of political form does not map cleanly onto the dynamics of constraint operating within the economic field. Both regimes exhibit the capacity to depoliticize the economy by reconfiguring  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$  in ways that suppress the reachability of alternative trajectories, particularly those associated with organized labor and democratic intervention.

Within the present framework, this continuity can be stated precisely. The distinction between liberal and fascist regimes does not primarily concern the presence or absence of constraint, but the modalities through which constraint is enacted and rendered legible. Liberal regimes tend to distribute constraint across institutional and market-mediated mechanisms, producing a field in which the suppression of reachability appears as the outcome of impersonal processes. Fascist regimes, by contrast, may concentrate these mechanisms, rendering the same underlying operations more explicit without altering their structural function. In both cases, the effect is the same: the coordinated transformation of  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$  such that the escape velocity of the system increases in response to the proximity of coordinated exit.

This perspective reframes the relation between austerity and fascism. Austerity is not simply a policy instrument that precedes or accompanies fascist consolidation; it is a mechanism of threshold regulation that can be deployed across different political forms. The historical specificity of fascism lies not in the invention of this mechanism, but in its intensification and reconfiguration under conditions of acute systemic instability. The capacity to raise escape velocity, however, is not unique to fascist regimes. It is a general property of systems organized around the stabilization of a given configuration, and it persists, in modified form, within contemporary liberal and neoliberal orders.

The implication is that the boundary between liberalism and fascism cannot be drawn solely at the level of institutional form or ideological articulation. It must be located, if at all, in the degree and visibility of threshold regulation. Where the suppression of reachability is distributed and naturalized, the system appears liberal; where it is concentrated and enforced more directly, it appears authoritarian. The underlying field dynamics remain continuous. What varies is the manner in which the regulation of escape velocity is enacted and perceived.

## 5.2 Limits of Endogenous Regulation

The presence of endogenous threshold regulation does not imply that stabilization always succeeds. Systems may fail to recalibrate thresholds in time, overshoot constraint, or generate instabilities that exceed their regulatory capacity. In the mean-field formulation of Appendix B, this corresponds to configurations where the feedback terms  $\gamma_i\chi$  intensify faster than the system can absorb, driving  $\Phi$  into regions of self-reinforcing collapse, fragmenting  $\mathbf{v}$  beyond recovery, or compressing  $\mathcal{S}$  to the point where the system's own reproduction becomes undermined. In such cases, the escape threshold may not rise but collapse, producing rapid transitions or systemic breakdown rather than stabilization. The Weimar Republic and the late-stage crisis of the gold standard order can both be read, in this framework, as cases where endogenous regulation failed to maintain the attractor and the system underwent forced basin exit rather than managed stabilization. The framework therefore admits persistence, managed transition, and breakdown as outcomes of the same underlying dynamics, distinguishing among them by the relative rates of coordination, threshold adjustment, and field deformation. This range of outcomes renders the model falsifiable in principle: a system exhibiting high structural gradients, fragmented agency, and compressed accessibility but failing to persist would constitute a case requiring the identification of which regulatory mechanisms broke down and why.

The generality of this result can be demonstrated by examining its operation in contemporary platform-mediated systems. The general theorem of endogenous threshold regulation finds a clear instantiation in platform-mediated economies, where the dynamics of constraint, agency, and accessibility are continuously recalibrated through algorithmic systems. Unlike the interwar regimes previously analyzed, these systems do not rely primarily on overt policy instruments such as fiscal contraction or institutional restructuring. Instead, they operate through the modulation of visibility, access, and coordination within digitally mediated environments. Despite this difference in mechanism, the underlying structure remains consistent: the escape velocity of the system is actively adjusted in response to the emergence of coordinated alternatives.

Within platform economies, the scalar field  $\Phi$  is constituted by infrastructural control over access to markets, audiences, and resources. Ownership of the platform confers the capacity to impose asymmetries that shape the potential landscape in which

agents operate. These asymmetries are not fixed; they are dynamically adjusted through pricing structures, terms of service, and technical affordances that determine the cost of participation and the distribution of returns. The depth of  $\Phi$  is thus continuously recalibrated, producing gradients that channel activity toward trajectories aligned with the platform's stabilizing objectives.

The vector field  $\mathbf{v}$  is mediated through algorithmic systems that structure the direction and coherence of agent behavior. These dynamics resonate with analyses of algorithmically mediated coordination and control in large-scale systems [12], though the present framework treats them as instances of a more general threshold-regulating structure rather than as features of any particular technical architecture. Recommendation engines, ranking algorithms, and feedback metrics do not merely reflect underlying activity; they actively organize it by amplifying certain trajectories and attenuating others. This modulation affects the capacity of agents to coordinate, as alignment depends on shared visibility and mutual reinforcement. When coordination approaches a level at which alternative configurations become reachable—whether in the form of collective bargaining, migration to alternative platforms, or the emergence of competing norms—the system adjusts the directional field by altering amplification patterns, thereby fragmenting coherence while preserving the formal availability of alternatives.

The configurational field  $\mathcal{S}$  is similarly subject to continuous management. The space of admissible trajectories is shaped by interface design, policy constraints, and the implicit norms encoded in platform governance. While alternative pathways often remain formally available, their reachability is constrained by reductions in visibility, increased friction, or the withdrawal of support structures. As in the austerity regimes previously analyzed, the distinction between existence and reachability is maintained at the formal level but collapsed in practice: trajectories that cannot be sustained under prevailing conditions cease to function as actionable possibilities.

What distinguishes platform economies is the temporal granularity at which these adjustments occur. Whereas interwar austerity operated through discrete policy interventions, algorithmic systems enable continuous recalibration of  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$  in response to real-time data. This increases the sensitivity of the system to the proximity of coordinated exit. Signals of emerging alignment—rapid growth in collective behavior, shifts in engagement patterns, or the formation of alternative networks—are detected and incorporated into the feedback mechanisms that govern the field. The escape velocity is thus not only elevated but adaptively tuned, ensuring that the threshold for transition remains just beyond the reach of current conditions.

From the perspective of agents within the system, these dynamics reproduce the phenomenology of trajectory tension in a modified form. The experience of instability, fragmentation, and constrained possibility persists, but it is mediated through interfaces that present the system as responsive and open. The continuous availability of options coexists with the systematic suppression of their reachability, producing a con-

dition in which agents are encouraged to adapt within the existing field rather than exit it. Capacity is again converted into maintenance rather than transition, though the mechanism of conversion is embedded in the feedback loops of the platform rather than imposed through overt constraint.

The significance of this case lies in its demonstration that endogenous threshold regulation does not depend on a particular institutional form. The same structural dynamics identified in austerity regimes operate within systems that differ in governance, scale, and technological substrate. The analogy is not without limits: platform economies differ from interwar austerity in the lower formal exit costs available to individual users and in the possibility of multi-homing across competing platforms, both of which reduce the depth of  $\Phi$  relative to institutional lock-in of the kind Mattei documents. These differences are real and should caution against direct equivalence. What the comparison establishes is not identity but structural continuity at the level of the threshold-regulating mechanism: the capacity to modulate reachability in response to emerging coordination is present in both, even if the degree of lock-in and the reversibility of individual exit differ substantially. Platform economies thus confirm that the regulation of escape velocity is a general property of systems organized around the stabilization of a given configuration, rather than a historically specific feature of any single regime. Algorithmic governance represents a further modality of the same underlying structure, one in which the suppression of reachability is embedded in technical systems rather than enacted through policy or coercion, completing a progression from liberal distribution to fascist concentration to algorithmic diffusion of the same threshold-regulating function.

### **5.3 Pillars and Counter-Pillars: Capital Structure and the Reconfiguration of Admissibility**

The structural analysis developed thus far permits a reformulation of the programmatic claims advanced in Mattei's recent work on economic transformation [2]. Rather than treating proposals such as participatory democracy, commons-based production, or the reorganization of labor as normative prescriptions, they can be understood as attempts to reconfigure the field components ( $\Phi, \mathbf{v}, \mathcal{S}$ ) that sustain the existing attractor.

Mattei identifies two central pillars of the capitalist order: wage labor and private investment. Within the present framework, these correspond to specific structural constraints on the admissibility of trajectories. Wage labor imposes a boundary condition on  $\Phi$  such that access to subsistence is coupled to participation in labor markets, effectively deepening the potential well by making exit from wage dependence energetically prohibitive. Private investment, in turn, constrains  $\mathcal{S}$  by delegating the determination of production pathways to profitability criteria, reducing the space of admissible futures to those aligned with capital accumulation. Together, these mechanisms couple structural asymmetry and configurational restriction, ensuring that alternative trajectories

remain formally conceivable but dynamically inaccessible.

Austerity operates as the stabilizing mechanism that maintains these constraints under conditions of stress. By increasing precarity, it reinforces the dependency structure embedded in  $\Phi$ ; by fragmenting collective agency, it suppresses the coherence of  $\mathbf{v}$ ; and by narrowing institutional possibilities, it compresses  $\mathcal{S}$ . The result is a field configuration in which the pillars of the system are not merely sustained but continuously reconstituted in response to the emergence of alternatives.

The proposals associated with what Mattei terms humanistic socialism can be reinterpreted as attempts to invert these constraints. Participatory institutions such as worker councils, neighborhood assemblies, and participatory budgeting function not simply as democratic innovations, but as mechanisms for restoring coherence to  $\mathbf{v}$  by enabling sustained collective alignment across agents. Commons-based production and public provisioning act on  $\Phi$  by decoupling access to essential resources from wage dependence, thereby flattening the potential gradients that enforce participation in the existing system. Finally, the reorientation of production toward need rather than profit expands  $\mathcal{S}$  by increasing the set of admissible trajectories that can be realized without passing through the profitability filter.

Crucially, these interventions cannot be understood in isolation. Each operates on a distinct component of the field, but their efficacy depends on their coupling. Participatory structures without material decommodification leave  $\Phi$  intact; redistribution without institutional transformation fails to restore  $\mathbf{v}$ ; expansion of possibilities without coordinated agency leaves  $\mathcal{S}$  formally enlarged but practically unreachable. The programmatic proposals therefore implicitly assume the condition formalized in the following section: that transformation requires relational coupling across all three components of the field.

This reframing clarifies both the ambition and the difficulty of the proposed transition. What is at stake is not the substitution of one set of policies for another, but the reconfiguration of the admissibility structure governing the system as a whole. The call to imagine a different system can thus be interpreted as an attempt to expand  $\mathcal{S}$  at the level of conceptual space; the challenge identified throughout this essay is that such expansion must be coupled to simultaneous transformations in  $\Phi$  and  $\mathbf{v}$  in order to affect reachability. The distinction between imagination and realization reappears here as the gap between existence and access, now expressed at the level of systemic alternatives. In this sense, the forward-looking proposals of Mattei's work do not stand outside the structural analysis developed in this essay, but constitute its practical counterpart: they identify, in concrete institutional terms, the directions in which each component of the field must be transformed.

## 6 A Relational Operator Framework for Coordinated Transformation

The preceding subsection identifies the directions of transformation in substantive terms; the present section defines the operators by which such transformations must be coupled. The structural claim of the preceding section establishes the existence of endogenous threshold regulation; the present section addresses the complementary problem of coordinated transition within such systems. The claim that threshold reduction requires simultaneous change across  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$  is structural; what remains is to define what simultaneity means mathematically when the three fields are dynamically coupled. The present section sketches the outlines of such an operator calculus, drawing on the relational structure implicit in the field decomposition.

The central observation is that coordination is not reducible to the sum of isolated interventions. If an agent or institution acts on  $\Phi$  independently, on  $\mathbf{v}$  independently, and on  $\mathcal{S}$  independently, the result is three separate perturbations, each of which the system can absorb before the others take effect. What is required is a relational coupling operator that acts on the configuration of changes rather than on any single component. Let this be denoted:

$$\mathcal{R} : \delta\Phi \times \delta\mathbf{v} \times \delta\mathcal{S} \longrightarrow \mathcal{C} \quad (1)$$

where  $\mathcal{C}$  is the coordination value of the joint transformation—a scalar functional measuring the degree of phase coherence by which changes in resources, agency, and admissibility mutually amplify across the coupled field. Formally, this operator bears resemblance to coupling functionals in control and transport theory [10, 11], though it is here interpreted as a structural measure of cross-field alignment rather than an optimization objective.

A reform fails not only when it leaves components unchanged, but when the changes it produces fail to cohere relationally. Two conditions of failure can be distinguished. The first is componentwise failure:

$$\delta\Phi \neq 0, \quad \delta\mathbf{v} = 0, \quad \delta\mathcal{S} = 0 \quad (2)$$

in which only one component of the field is perturbed, leaving the others intact to generate compensatory feedback. The second is relational failure:

$$\mathcal{R}(\delta\Phi, \delta\mathbf{v}, \delta\mathcal{S}) \approx 0, \quad (3)$$

indicating vanishing cross-field coupling despite nonzero component perturbations—the changes proceed in parallel without coupling, and the system recalibrates each in sequence before any can leverage the others.

A successful threshold-lowering intervention requires that the coordination value

exceed the current endogenous escape threshold  $\lambda_{\text{escape}}$ :

$$\mathcal{R}(\delta\Phi, \delta\mathbf{v}, \delta\mathcal{S}) > \lambda_{\text{escape}} \quad (4)$$

where  $\lambda_{\text{escape}}$  is itself a function of the system's current configuration and its proximity to coordinated exit, as established by the general theorem. This condition is more demanding than it appears. Because  $\lambda_{\text{escape}}$  is endogenously recalibrated in response to the approach of coordinated transformation, the threshold is not fixed but rises as the coordination value approaches it. The governing condition for transition can therefore be stated as a rate inequality:

$$\frac{d\mathcal{C}}{dt} > \frac{d\lambda_{\text{escape}}}{dt} \quad (5)$$

This reformulates the emancipatory condition in dynamical terms. Transformation occurs not when resources, organization, or admissible futures reach a sufficient level in isolation, but when changes across all three become mutually amplifying at a rate that exceeds the system's capacity to raise the threshold in response. The race is not between agents and barriers, but between the rate of relational coupling and the rate of endogenous recalibration.

This operator calculus does not complete the formal analysis; it opens it. A full treatment would require specification of the metric on the space of field configurations, the functional form of  $\mathcal{R}$  for particular domains, and the conditions under which  $\lambda_{\text{escape}}$  saturates or becomes unbounded. What the present sketch establishes is the form of the problem: emancipatory strategy, understood in these terms, is the problem of achieving phase-locked transformation across  $\Phi$ ,  $\mathbf{v}$ , and  $\mathcal{S}$  faster than the system can decouple and absorb each component in sequence. The preceding analysis identifies the obstruction. The calculus of coordinated transformation specifies the operators by which that obstruction is reinforced, bypassed, or dissolved. Transformation requires not only coordination, but coordination that couples across fields, accelerates faster than endogenous resistance, and projects onto modes capable of spanning the system.

## 6.1 Scope and Applicability

The framework developed in this essay applies to systems in which coordinated action is required for large-scale transition, structured asymmetries constrain the trajectories available to agents, and feedback mechanisms exist that can modify those constraints in response to emerging coordination. It does not claim to describe all economic or political systems, nor to capture all determinants of change. Its scope is limited to cases where reachability, rather than mere availability of alternatives, constitutes the primary barrier to transformation. Systems in which change is primarily blocked by informational asymmetry, by coordination failures in the game-theoretic sense, or by purely ideological factors not mediated through structural field configurations will require dif-

ferent or supplementary frameworks. The present model is most directly applicable to cases—such as interwar austerity and contemporary platform governance—where the field structure is institutionally dense, the feedback mechanisms are organizationally embedded, and the gap between existence and reachability of alternatives is large and actively maintained.

## 6.2 Qualitative Predictions

Despite its abstract form, the framework yields qualitative predictions that are, in principle, testable against historical and comparative data. Systems exhibiting high structural gradients in  $\Phi$ , fragmented  $\mathbf{v}$ , and compressed  $\mathcal{S}$  will display high activity without large-scale transition: many local perturbations, none of which accumulates into basin exit. Interventions that expand  $\mathcal{S}$  without increasing coherence in  $\mathbf{v}$  will produce proliferating articulated alternatives without institutional realization. Conversely, transformations that successfully project coordination onto low-frequency modes of the field should produce rapid, system-wide shifts once threshold conditions are crossed, with the speed of transition inversely related to the rate at which the system can raise  $\lambda_{\text{escape}}$  in response. Austerity responses should be most intense not at moments of greatest labor weakness but at moments of greatest coordinated approach to the escape threshold, when all three field components simultaneously approach the conditions for coupled transformation. These predictions are qualitative but discriminating: they distinguish the present account from simpler models that predict intervention intensity as a monotone function of labor strength or fiscal stress, and they generate testable comparative expectations across historical episodes of austerity, partial reform, and successful structural transition.

## Appendices

### A Metric Structure and the Geometry of Escape Thresholds

The operator calculus introduced in Section 8 presupposes a geometry on the space of field configurations that has not yet been specified. This appendix defines a minimal metric structure on the state-field  $X = (\Phi, \mathbf{v}, \mathcal{S})$  and derives a functional representation of the escape threshold  $\lambda_{\text{escape}}$  in terms of that geometry.

#### A.1 Field Space and Norm Structure

Let  $\mathcal{X}$  denote the space of admissible field configurations over a domain  $\Omega \subset \mathbb{R}^n$ , with elements

$$X(x) = (\Phi(x), \mathbf{v}(x), \mathcal{S}(x)). \quad (6)$$

Define a weighted norm on  $\mathcal{X}$  by

$$\|X\|^2 = \int_{\Omega} [\alpha |\nabla\Phi(x)|^2 + \beta |\mathbf{v}(x)|^2 + \gamma |\nabla\mathcal{S}(x)|^2] dx, \quad (7)$$

where  $\alpha, \beta, \gamma > 0$  are coupling weights encoding the relative stiffness of each field component. This norm induces a metric

$$d(X_1, X_2) = \|X_1 - X_2\|, \quad (8)$$

measuring the energetic distance between configurations.

#### A.2 Escape Functional

Let  $\mathcal{A} \subset \mathcal{X}$  denote a basin of attraction. The escape threshold is defined as the minimal action required to move from  $X \in \mathcal{A}$  to  $\partial\mathcal{A}$ :

$$\lambda_{\text{escape}}(X) = \inf_{\gamma} \int_0^T \mathcal{L}(X(t), \dot{X}(t)) dt, \quad (9)$$

where  $\gamma : [0, T] \rightarrow \mathcal{X}$  is a trajectory with  $\gamma(0) = X$  and  $\gamma(T) \in \partial\mathcal{A}$ . A minimal Lagrangian consistent with the field decomposition is

$$\mathcal{L} = \frac{1}{2} \|\dot{X}\|^2 + V(X), \quad (10)$$

where  $V(X)$  encodes structural asymmetry, increasing with gradients in  $\Phi$  and decreasing with expansion in  $\mathcal{S}$ . This formalizes escape velocity as a functional of both the configuration and the geometry of the basin.

### A.3 Relational Coupling as a Trilinear Operator

The coordination operator  $\mathcal{R}$  introduced in Section 8 can be refined as a trilinear form:

$$\mathcal{R}(\delta\Phi, \delta\mathbf{v}, \delta\mathcal{S}) = \int_{\Omega} \kappa(x) \delta\Phi(x) \langle \delta\mathbf{v}(x), \nabla\delta\mathcal{S}(x) \rangle dx, \quad (11)$$

where  $\kappa(x)$  is a coupling kernel. This expression makes explicit that coordination depends on alignment between structural change ( $\delta\Phi$ ), directional coherence ( $\delta\mathbf{v}$ ), and gradients of accessibility ( $\nabla\delta\mathcal{S}$ ). Relational failure corresponds to near-orthogonality in this integral; strong coordination corresponds to constructive alignment across all three.

### A.4 Dynamical Threshold Condition

Let  $\mathcal{C}(t) = \mathcal{R}(\delta\Phi(t), \delta\mathbf{v}(t), \delta\mathcal{S}(t))$ . The rate inequality

$$\frac{d\mathcal{C}}{dt} > \frac{d\lambda_{\text{escape}}}{dt} \quad (12)$$

can now be interpreted geometrically: the rate of increase of cross-field alignment must exceed the rate at which the minimal escape action increases due to endogenous deformation of the basin. This establishes a competition between two geometric processes: the alignment of perturbations across the field (increasing  $\mathcal{C}$ ), and the deformation of the basin boundary (increasing  $\lambda_{\text{escape}}$ ).

### A.5 Limit Behavior

Three limiting regimes clarify the structure of the competition.

In the *rigid regime* ( $\alpha \gg \beta, \gamma$ ), structural constraints dominate;  $\Phi$  gradients sharply increase  $\lambda_{\text{escape}}$ , making coordination insufficient regardless of agency or admissibility.

In the *diffuse regime* ( $\gamma \gg \alpha, \beta$ ), high configurational accessibility reduces  $\lambda_{\text{escape}}$ , but coordination may remain weak if  $\mathbf{v}$  is fragmented—the condition of expanded possibility without capacity to reach it.

In the *critical regime* ( $\alpha \sim \beta \sim \gamma$ ), coupling is balanced; small coordinated perturbations can produce large shifts in reachability. This is the regime in which the rate inequality becomes contestable.

### A.6 Interpretation

This appendix formalizes the intuition that escape from a constrained system is not a scalar problem of increased force, but a geometric problem of alignment across coupled fields. The coordination operator  $\mathcal{R}$  acquires a concrete interpretation as a measure of cross-field phase alignment, while  $\lambda_{\text{escape}}$  becomes a path-dependent functional shaped

by the evolving geometry of constraint. The resulting picture is one in which transformation is governed by the interaction of geometry and dynamics: the shape of the basin and the coherence of trajectories within it jointly determine the conditions under which escape becomes possible.

## B A Minimal Dynamical Closure for the Field System

The geometric framework of Appendix A and the operator calculus of Section 8 identify the structure of constraint and the conditions for coordinated exit, but leave open the question of how the fields  $(\Phi, \mathbf{v}, \mathcal{S})$  evolve in time. The present appendix proposes a minimal dynamical closure: a coupled system of evolution equations whose terms are chosen to reproduce the structural relations established in the main text, not to derive those relations from first principles. The equations below are therefore not claimed as unique; they define one consistent dynamical realization of the model whose qualitative behavior matches the essay's core claims.

### B.1 Threshold Activation

A central feature of the model is that the system's stabilizing response intensifies specifically when coordination approaches the escape threshold. To capture this, define a threshold proximity functional:

$$\chi(\mathcal{C}, \lambda_{\text{escape}}) = \sigma\left(\frac{\mathcal{C}}{\lambda_{\text{escape}}} - \theta\right), \quad (13)$$

where  $\sigma$  is a sigmoid function and  $\theta \in (0, 1)$  is a sensitivity parameter. This ensures that regulatory feedback is negligible when  $\mathcal{C} \ll \lambda_{\text{escape}}$  and intensifies as  $\mathcal{C}/\lambda_{\text{escape}} \rightarrow \theta$ . Note that  $f(\lambda_{\text{escape}} - \mathcal{C})$  activations that decrease monotonically in  $\mathcal{C}$  would invert this logic, triggering maximum regulation when coordination is lowest; the sigmoid formulation corrects this and implements genuinely near-threshold regulation.

### B.2 Coherence Functional

The fragmentation of  $\mathbf{v}$  is distinct from its raw magnitude: high-energy but incoherent motion should not deepen  $\Phi$  in the same way as coherent collective movement. Define a coherence functional:

$$Q(\mathbf{v}) = |\mathbf{v}|^2 \cdot \exp\left(-\mu \int_{\Omega} |\nabla \times \mathbf{v}|^2 dx\right), \quad (14)$$

which is maximal for large, irrotational  $\mathbf{v}$  (coherent flow) and suppressed by high vorticity (fragmented motion). Endogenous regulation terms that depend on agency should be weighted by  $Q(\mathbf{v})$  rather than  $|\mathbf{v}|^2$  alone.

### B.3 Coupled Evolution Equations

Let  $\Omega \subset \mathbb{R}^n$  be the configuration domain,  $D_\Phi, D_v, D_S > 0$  diffusion coefficients, and  $\nu(\Phi)$  a friction coefficient increasing in  $\Phi$ . A minimal coupled PDE system consistent with the essay's structural claims is:

$$\partial_t \Phi = D_\Phi \Delta \Phi + a |\nabla \Phi|^2 - b \mathcal{C} + \gamma_1 \chi(\mathcal{C}, \lambda_{\text{escape}}) Q(\mathbf{v}), \quad (15)$$

$$\partial_t \mathbf{v} = D_v \Delta \mathbf{v} - \nu(\Phi) \mathbf{v} + k \nabla S - \gamma_2 \chi(\mathcal{C}, \lambda_{\text{escape}}) (\nabla \cdot \mathbf{v}) \mathbf{v}, \quad (16)$$

$$\partial_t S = D_S \Delta S + \kappa_1 \nabla \cdot \mathbf{v} - p |\nabla \Phi|^2 - \gamma_3 \chi(\mathcal{C}, \lambda_{\text{escape}}). \quad (17)$$

The terms are interpreted as follows. In the  $\Phi$ -equation: diffusion smooths spatial variation; self-reinforcing asymmetry ( $a|\nabla\Phi|^2$ ) captures the tendency of structural gradients to steepen; coordination relaxes structure ( $-b\mathcal{C}$ ); and near-threshold coherent agency deepens the potential well ( $+\gamma_1\chi Q(\mathbf{v})$ ), implementing endogenous threshold regulation. In the  $\mathbf{v}$ -equation: diffusion spreads agency; structural friction damps directional coherence ( $-\nu(\Phi)\mathbf{v}$ ); accessibility gradients orient movement ( $+k\nabla S$ ); and near-threshold fragmentation is amplified by the divergence of  $\mathbf{v}$  ( $-\gamma_2\chi(\nabla \cdot \mathbf{v})\mathbf{v}$ ). In the  $S$ -equation: coherent agency flow expands possibilities ( $+\kappa_1 \nabla \cdot \mathbf{v}$ ); structural gradients compress accessibility ( $-p|\nabla\Phi|^2$ ); and near-threshold regulation suppresses admissible futures ( $-\gamma_3\chi$ ).

### B.4 Mean-Field Reduction

Spatial integration under uniformity assumptions yields a tractable low-dimensional system. Let  $\phi = \langle \Phi \rangle$ ,  $\mathbf{u} = \langle \mathbf{v} \rangle$ ,  $s = \langle S \rangle$ , and  $\lambda = \lambda_{\text{escape}}(\phi, \mathbf{u}, s)$ :

$$\dot{\phi} = a \phi^2 - b c + \gamma_1 \chi(c, \lambda) Q(\mathbf{u}), \quad (18)$$

$$\dot{\mathbf{u}} = -\nu(\phi) \mathbf{u} + k \nabla s - \gamma_2 \chi(c, \lambda) \mathbf{u}, \quad (19)$$

$$\dot{s} = \kappa_1 (\nabla \cdot \mathbf{u}) - p \phi^2 - \gamma_3 \chi(c, \lambda), \quad (20)$$

where  $c = \phi(\mathbf{u} \cdot \nabla s)$  is a pointwise coordination density. This nonlinear system admits stable attractors at high  $\phi$ , low  $|\mathbf{u}|$ , low  $s$ —the high escape velocity regime—and exhibits bifurcation when  $\dot{c} > \dot{\lambda}$ , corresponding to the rate inequality of Section 8.

### B.5 Structural Correspondences

The qualitative behavior of this system reproduces the essay's main claims. Piecemeal intervention—isolated change in one component—triggers compensatory feedback through  $\chi$  that restores the high-threshold attractor before the unmodified components can be

affected. Coordinated escape requires  $c(t)$  to grow such that  $\dot{c} > \dot{\lambda}$ , at which point the feedback terms weaken,  $\phi$  decreases,  $|\mathbf{u}|$  grows coherently, and  $s$  expands, permitting transition to an alternative basin. Austerity as an external forcing corresponds to adding terms  $+\delta\Phi_{\text{aust}}, -\delta\mathbf{v}_{\text{aust}}, -\delta\mathcal{S}_{\text{aust}}$  that simultaneously deepen, fragment, and compress across all three equations.

## B.6 Epistemic Status

The parameters  $a, b, \gamma_i, \kappa_i, p, \mu, \theta$  are not empirically calibrated here; their specification requires domain-specific modeling and data. Candidate empirical proxies include wealth Gini or institutional barrier indices for  $\Phi$ , union density or network alignment centrality for  $\mathbf{v}$ , and policy space dimensionality or institutional variety measures for  $\mathcal{S}$ . A stochastic extension—adding Itô noise terms to each equation—would accommodate agent heterogeneity. Existence and uniqueness of solutions for the full nonlinear system require further analysis; the mean-field reduction is more tractable and admits numerical simulation. The system is offered as a minimal dynamical closure, not a completed model: it establishes that the essay’s structural claims are consistent with a well-posed evolution law while leaving open the calibration and extension required for quantitative application. Related approaches treating macroscopic dynamics as emergent from constrained probabilistic transitions have been explored in recent theoretical work [13], though without the explicit tripartite decomposition developed here.

## C Spectral Modes of Coordination and Propagation

While Appendix A defines the geometry of the basin and Section 8 defines the local operators of coordination, the present appendix determines which coordinated perturbations survive as global transformations. The operator calculus developed in Section 8 and the metric structure defined in Appendix A admit a spectral formulation that clarifies the global behavior of coordinated transformations. While the coordination functional  $\mathcal{C}$  measures the degree of cross-field coupling at a given configuration, it does not by itself determine whether such coupling can propagate across the domain. This appendix introduces a spectral decomposition of the field that distinguishes between localized coordination and modes capable of system-wide amplification.

### C.1 Laplacian Structure on Field Space

Let  $\mathcal{X}$  denote the space of field configurations equipped with the metric defined in Appendix A. The associated Laplace–Beltrami operator  $\Delta_{\mathcal{X}}$  acts on scalar functionals over  $\mathcal{X}$  and encodes the geometry of diffusion and propagation within the field. For a scalar observable  $f : \mathcal{X} \rightarrow \mathbb{R}$ , define

$$\Delta_{\mathcal{X}} f = \nabla \cdot (\nabla f), \quad (21)$$

where the gradient and divergence are taken with respect to the metric on  $\mathcal{X}$  (that is, as functional derivatives over field configurations rather than spatial derivatives over  $\Omega$ , consistent with the norm structure of Appendix A). The eigenvalue problem

$$\Delta_{\mathcal{X}}\psi_k = \lambda_k\psi_k \quad (22)$$

defines a set of modes  $\{\psi_k\}$  with eigenvalues  $\{\lambda_k\}$  that characterize the intrinsic geometry of the field. Such spectral decompositions are standard in the analysis of diffusion and propagation on complex manifolds [9], here extended to the space of coupled field configurations.

## C.2 Eigenmodes of Coordination

The coordination functional  $\mathcal{C}$  can be expanded in this basis:

$$\mathcal{C}(X) = \sum_k a_k\psi_k(X), \quad (23)$$

where  $a_k$  are mode amplitudes. Each eigenmode corresponds to a pattern of cross-field alignment with a characteristic scale and propagation behavior. Low-frequency modes (small  $|\lambda_k|$ ) correspond to large-scale, slowly varying coordination patterns capable of spanning the domain, while high-frequency modes correspond to localized fluctuations that decay rapidly. The distinction is decisive: local coordination corresponds to high amplitude concentrated in large- $|\lambda_k|$  modes but confined spatially, while global coordination requires significant amplitude in low- $|\lambda_k|$  modes capable of propagation across the field. Only the latter contributes meaningfully to lowering the escape threshold at the system level.

## C.3 Spectral Condition for Escape

The dynamical condition  $\frac{d\mathcal{C}}{dt} > \frac{d\lambda_{\text{escape}}}{dt}$  can now be refined spectrally. Let  $\mathcal{C}_{\text{low}}$  denote the projection of  $\mathcal{C}$  onto low-frequency modes:

$$\mathcal{C}_{\text{low}} = \sum_{|\lambda_k| \leq \Lambda} a_k\psi_k. \quad (24)$$

The effective escape condition becomes:

$$\frac{d\mathcal{C}_{\text{low}}}{dt} > \frac{d\lambda_{\text{escape}}}{dt}, \quad (25)$$

indicating that only coordination which couples into propagating modes can overcome endogenous threshold regulation. Coordination confined to high-frequency modes remains locally coherent but globally inert.

## C.4 Amplitude Cascades and Scale Coupling

The evolution of coordination can be understood as a cascade across scales. Initial perturbations often appear in high-frequency modes, corresponding to localized alignment of  $\delta\Phi$ ,  $\delta\mathbf{v}$ , and  $\delta\mathcal{S}$ . For transformation to occur, these perturbations must transfer energy into lower-frequency modes. Define an amplitude cascade operator

$$\mathcal{A} : \{a_k\} \longrightarrow \{a'_k\}, \quad (26)$$

which redistributes spectral weight across modes. We require  $\mathcal{A}$  to conserve total spectral energy up to dissipation, that is,  $\sum_k |a_k|^2 \geq \sum_k |a'_k|^2$ , with transfer biased toward lower-frequency modes under successful coordination, consistent with the norm structure of Appendix A. A necessary condition for systemic transformation is the existence of a cascade pathway such that

$$a_k(t_0) \rightarrow a_{k'}(t_1), \quad \text{with } |\lambda_{k'}| < |\lambda_k|. \quad (27)$$

In the absence of such a cascade, coordination remains trapped in localized modes and is dissipated by the system's stabilizing dynamics before it can reach the scale at which threshold conditions are determined.

## C.5 Interpretation

This spectral formulation refines the theory of coordinated transformation in two respects. First, it distinguishes between coordination that is locally coherent and coordination that is globally effective, identifying the latter with low-frequency eigenmodes of the field. Second, it introduces scale transfer as a necessary condition for transformation: alignment must not only occur but propagate across scales through a cascade mechanism.

The resulting picture is one in which endogenous threshold regulation operates not only by raising barriers in the aggregate, but by damping the transfer of coordination from local to global modes. Austerity, algorithmic governance, and related mechanisms can thus be interpreted as spectral filters that suppress low-frequency alignment while permitting high-frequency fluctuation, maintaining the appearance of activity without enabling transition. The problem of transformation is therefore a spectral problem: not simply the generation of coordination, but its successful projection onto modes capable of spanning the system. The calculus of coordinated transformation specifies the local operators; the metric structure specifies the geometry of the basin; the spectral analysis specifies the global conditions under which those operators produce systemic change. Transformation, in this framework, is not the accumulation of effort but the successful coupling of structure, agency, and possibility into modes that can propagate faster than the system can suppress them.

## References

- [1] Mattei, Clara E. *The Capital Order: How Economists Invented Austerity and Paved the Way to Fascism*. University of Chicago Press, 2022.
- [2] Mattei, Clara E. *Escape from Capitalism: An Intervention*. Penguin, 2026.
- [3] Acemoglu, Daron, and James A. Robinson. *Economic Origins of Dictatorship and Democracy*. Cambridge University Press, 2006.
- [4] Arthur, W. Brian. *Increasing Returns and Path Dependence in the Economy*. University of Michigan Press, 1994.
- [5] North, Douglass C. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, 1990.
- [6] Holland, John H. *Adaptation in Natural and Artificial Systems*. MIT Press, 1992.
- [7] Anderson, Philip W. "More Is Different." *Science* 177, no. 4047 (1972): 393–396.
- [8] Prigogine, Ilya, and Isabelle Stengers. *Order Out of Chaos: Man's New Dialogue with Nature*. Bantam Books, 1984.
- [9] Ott, Edward. *Chaos in Dynamical Systems*. Cambridge University Press, 2002.
- [10] Villani, Cédric. *Optimal Transport: Old and New*. Springer, 2009.
- [11] Lasry, Jean-Michel, and Pierre-Louis Lions. "Mean Field Games." *Japanese Journal of Mathematics* 2, no. 1 (2007): 229–260.
- [12] Goodfellow, Ian, Yoshua Bengio, and Aaron Courville. *Deep Learning*. MIT Press, 2016.
- [13] Barandes, Jacob A. "The Unistochastic Quantum Theory." *arXiv preprint arXiv:2305.19764*, 2023.
- [14] Wilson, Mark. *Wandering Significance: An Essay on Conceptual Behavior*. Oxford University Press, 2006.
- [15] Wilson, Mark. *Physics Avoidance and Other Essays in Conceptual Strategy*. Oxford University Press, 2017.
- [16] Frank, Adam, Marcelo Gleiser, and Evan Thompson. *The Blind Spot: Why Science Cannot Ignore Human Experience*. MIT Press, 2025.