

Saturation and Sovereignty — Addiction as a Structural Constraint Regime

Abstract

This paper offers a purely structural account of addiction as a regime of constraint saturation within the framework of Informational Ontology (IO). Working strictly downstream of the completed ontology and its derivative corpus, addiction is analyzed not as a disease, a failure of will, a hidden preference, or a loss of agency, but as a trajectory-level phenomenon in which salience achieves monopoly over an agent's action space. Under sustained salience pressure, underdetermination collapses upstream of choice, producing reliable path-dependent trajectory convergence despite the persistence of agency and locally intact choice mechanisms. The account explains why agents in addiction act against articulated preferences without invoking executive failure, compulsion, or moral deficit; why freedom (i.e., underdetermination) degrades structurally rather than psychologically; and why responsibility attenuates without disappearing. The resulting picture dissolves the apparent paradox of "choosing what one does not want" by relocating explanation from momentary decisions to the constraint history that produces them.

1. Scope, Authority, and Methodological Discipline

This paper operates strictly downstream of the Informational Ontology (Rev5 MASTER, LOCKED) and its completed derivative papers. All definitions of constraint, salience, underdetermination, saturation, trajectory, action space, meaning, purpose, agency, and responsibility are assumed as fixed and authoritative. No revisions, extensions, or repairs of the ontology are proposed.

The present work is an application paper. Its task is to demonstrate explanatory power by applying existing structural resources to a familiar and contested domain—addiction—without importing psychological faculties, clinical taxonomies, or normative judgments. Where everyday language appears (e.g., "craving"), it is explicitly treated as non-structural shorthand rather than explanatory currency.

The analysis is descriptive and structural. It does not propose treatments, interventions, policies, or moral evaluations. Explanatory success is assessed by internal coherence, scope fidelity, and resistance to mislevelled interpretations.

2. The Explanatory Target

Terminology note. The term *addiction* is used here as a regime label for a specific structural configuration of constraint saturation. It is not employed as a clinical, diagnostic, or medical category, and no appeal is made to pathology as an explanatory primitive.

Addiction presents a persistent explanatory puzzle. Agents reliably perform actions they themselves disavow, often articulating long-horizon purposes—health, stability, relationships—that conflict with their short-horizon behavior. Standard framings divide along familiar lines: addiction as disease, addiction as

choice, addiction as compulsion, addiction as weakness of will. Each framing captures surface regularities while mislocating the explanatory burden.

Within Informational Ontology, these framings fail not because they are empirically false, but because they operate at incompatible levels of description. Disease models collapse explanation into substrate-level causation; choice models presuppose intact underdetermination at the moment of action; compulsion models deny agency by fiat; moralized models import normativity where none is structurally required. None of these explain how agency can persist while freedom degrades.

The explanatory target of this paper is therefore precise: to explain addiction as a structural regime in which agents continue to act as agents while their action spaces become progressively saturated by salience, producing stable trajectory convergence across time.

3. Structural Preliminaries: Action Spaces and Underdetermination

Geometric non-formalization note. References to action-space geometry—narrowing, funneling, convergence—are structural and topological descriptions, not metric or quantitative models. No appeal is made to formal phase spaces, thresholds, or dynamical equations. The geometry is explanatory shorthand for constraint relations governing reachability, not a proposal for mathematical representation.

An action space, in the IO sense, is the set of transitions that remain structurally reachable for an agent at a given moment, given operative constraints. Action spaces are not psychological inventories, deliberative menus, or conscious options; they are structural features of a system situated within awareness, value, meaning, and purpose.

Underdetermination obtains when the total configuration of constraints fails to uniquely specify a single transition. In such regimes, multiple meaningful futures remain structurally reachable. Free will, where it appears, is instantiated only under such underdetermination. Constraint does not oppose agency; it defines the space within which agency may or may not be free.

Constraint saturation occurs when the space of reachable transitions collapses to a single viable trajectory. Saturation does not introduce a selector, override, or competing mechanism. It closes the space. When saturation obtains, action continues, but freedom does not.

4. Salience and the Collapse of Availability

Mechanism clarification. In addictive regimes, salience monopoly is not an independent regime or explanatory competitor to saturation. It is the primary mechanism by which constraint saturation is realized in this domain. Salience pressure progressively removes alternatives from availability at the A-V interface, and saturation names the resulting state of global underdetermination collapse. Other mechanisms of saturation are conceptually possible in principle, but addiction is characterized by this specific salience-driven route.

Salience operates as a pre-interpretive constraint on availability. It conditions which informational distinctions enter the field of valuation at all. Salience does not rank options, express preferences, or evaluate outcomes; it shapes what can be acted upon.

In ordinary contexts, salience fluctuates, biases without closure, and leaves substantial underdetermination intact. In addictive regimes, a narrow class of informational inputs—associated with substance use or behavior—repeatedly achieves extreme salience. This salience does not merely bias action; it progressively monopolizes availability.

As salience monopolizes availability, alternative trajectories may remain informationally represented and even meaningfully endorsed at the level of articulated purpose, yet become structurally unreachable in action. The collapse occurs upstream of deliberation, not at the point of choice.

5. From Bias to Saturation: Trajectory-Level Analysis

Addiction is not defined by a single act, urge, or failure. It is defined by a trajectory: a history of constraint modulation under repeated salience pressure. Early in such trajectories, salience biases action without closure. Multiple futures remain reachable, though asymmetrically weighted. Responsibility is mitigated but not extinguished.

Over time, repeated bias produces path dependence. Constraint accumulates. Temporal bandwidth compresses. The action space narrows. Eventually, saturation occurs: at relevant moments, only one transition remains structurally viable. This is not because alternatives are unvalued or undesired, but because they are no longer reachable under the prevailing constraint configuration.

The stability of addictive behavior is therefore not explained at the moment of use. It is explained by the prior collapse of underdetermination that makes that moment inevitable within the agent's trajectory.

6. Regime Mismatch: Purpose, Value, and Salience

Structural neutrality clarification. The reference to long-horizon purpose in this section does not privilege such purposes as normatively superior, more authentic, or more real. Long-horizon purposes are highlighted solely because they often remain structurally represented within meaning (M) and purpose (P) while being rendered action-inoperative by upstream salience saturation. Addiction does not require that these purposes be correct, rational, or authoritative; it requires only that they persist as organized meaning without participating in local transition guidance.

A central feature of addiction is regime mismatch rather than internal contradiction. Purpose, as the directional constraint of meaning across time, often remains oriented toward long-horizon outcomes incompatible with addictive behavior. Agents may genuinely mean and endorse futures that do not involve continued use.

Value, however, becomes locally saturated under salience pressure. The A-V interface is monopolized by a narrow class of inputs, producing immediate constraint closure. The result is not that purpose disappears, but that it is structurally prevented from participating in action guidance at relevant moments.

There is no conflict between “what the agent really wants” and “what the agent does.” There is a mismatch between regimes: purpose operates over extended trajectories; salience collapses local action spaces. The system still chooses locally. The global action space is funneled.

7. Agency Without Freedom

Compulsion disambiguation. Structural saturation must be distinguished from compulsion. Compulsion posits an external or higher-order selector that overrides an agent's transition ownership, replacing agency with enforcement. Saturation introduces no such selector. It consists in internal closure of the action space under accumulated constraint, such that resolution proceeds through the same identity-preserving continuation described in Resolution Under Degeneracy. The agent does not fail to choose; rather, underdetermination is absent, and no alternative transition remains available to be chosen.

Addiction does not eliminate agency. The agent remains the locus of transition. **Local choice clarification.** Where choice is said to persist locally, this denotes resolution under degeneracy in the sense already established within Informational Ontology: identity-preserving continuation under conditions where no selector operates, not deliberative selection among available alternatives. No external system selects on the agent's behalf. No competing chooser replaces the agent's activity.

What disappears is freedom, understood as underdetermination. When constraint saturates the action space, free will is not overridden; it is not instantiated. The absence of freedom is a consequence of closure, not a psychological failure.

This distinction explains why appeals to willpower, self-control, or executive strength misfire structurally. They presuppose that alternative trajectories remain reachable at the moment of action. In saturated regimes, they do not.

8. Responsibility as Constraint-Scaled

Non-rescue clause. Attenuation of responsibility in saturated regimes does not entail excuse, absolution, justification, or policy recommendation. It neither redeems nor condemns behavior. It explains why attribution practices become unstable as underdetermination collapses, and why outcome-focused judgments fail to track the structural conditions under which action occurs.

Responsibility, as established in downstream IO work, scales with the freedom structurally available within an action space. In underdetermined regimes, responsibility is maximal. In biased regimes, responsibility is mitigated. In saturated regimes, responsibility attenuates toward absence.

Addiction therefore destabilizes responsibility attribution not because agents cease to exist or act, but because the structure of their action spaces shifts across time. Attribution practices that track outcomes or character rather than structural freedom misfire predictably in saturated contexts.

This account neither excuses nor condemns addictive behavior. It explains why responsibility judgments become unstable as saturation increases and why punitive responses applied after saturation often fail to modify trajectories.

9. Why Standard Framings Fail

Addiction is not a failure of will: no executive capacity is overridden or defeated. It is not hidden preference satisfaction: articulated purposes may be genuine yet structurally inoperative. It is not mere compulsion:

agency persists without replacement. It is not moral weakness: normativity plays no explanatory role. It is not total loss of agency: transitions remain agent-owned. It is not purely neurochemical explanation: substrate-level description does not capture action-space geometry.

These framings are not alternatives; they are mislevelled explanations that collapse distinct regimes.

10. Conclusion: Saturation Without Moralization

Addiction, on this account, is the structural configuration of agency after its action space has been monopolized by salience. The agent remains the locus of transition. Local choice persists as identity-preserving continuation as identity-preserving continuation under degeneracy, while freedom degrades globally through the collapse of underdetermination. Responsibility attenuates accordingly.

The apparent paradox of choosing what one does not want dissolves once explanation is relocated from momentary decision to trajectory-level constraint history. No appeal to willpower, pathology, hidden preference, or moral failure is required.

Appendix A: Collapse Audit Summary (Non-Load-Bearing)

This appendix summarizes how the paper structurally blocks common misinterpretations without introducing additional commitments. It is clarificatory only; removing it leaves the core argument intact.

1. **No willpower or executive failure.** Saturation denotes the absence of underdetermination, not the defeat of an internal chooser. Appeals to willpower presuppose alternatives that are structurally unavailable.
2. **No hidden preferences or authentic selves.** Long-horizon purposes are not privileged as normatively superior or more real. They are cited only where they remain structurally represented while rendered action-inoperative by upstream salience saturation.
3. **No compulsion or override.** Saturation involves internal closure of the action space without external or higher-order selectors. Agency persists as identity-preserving continuation under constraint.
4. **No moralization or excuse.** Responsibility attenuation tracks the collapse of underdetermination, not character, outcome, or desert. This explains attribution instability without excusing or condemning behavior.
5. **No momentary-choice explanation.** Addictive behavior is explained at the trajectory level by accumulated constraint history, not by decisions taken in isolation at the moment of action.
6. **No policy or treatment inference.** The analysis is explanatory only. It neither recommends intervention nor justifies enforcement.

This containment clarifies scope discipline and blocks predictable collapse routes while preserving the strictly structural posture of the paper.