

# Regulated Multiplicity: An Architectural Account of Consciousness and Subjectivity

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## *Abstract*

This paper develops *Regulated Multiplicity* as an architectural framework for understanding consciousness and subjectivity. The central hypothesis is that consciousness arises from the regulated interaction of multiple semi-independent internal models—processes that generate competing interpretations, predictions, evaluations, and action proposals. Rather than treating subjectivity as an unexplained accompaniment to cognition, the framework identifies conscious experience with the internal standpoint generated by adjudicating among these alternatives. Multiplicity provides the raw material for cognition; regulation provides coherence; and the standpoint from which alternatives are evaluated is what appears, from within, as experience.

This architectural perspective explains why consciousness varies along a continuum, why children experience time more slowly than adults, why psychopathology reflects failures of regulation rather than the presence of anomalous mental contents, and why current artificial systems lack the organization required for a subjective point of view. It also reframes the hard problem: not by denying the reality of experience, but by showing that the standpoint it highlights is a structural requirement of systems capable of learning, evaluation, and self-correction. Consciousness, in this view, is the internal aspect of regulated multiplicity.

## Introduction

The nature of consciousness remains one of the most persistent puzzles in philosophy and cognitive science. Despite advances in neuroscience, computational modeling, and theories of representation, we still lack a satisfying account of why cognitive systems exhibit subjective experience—why there is *something it is like* to perceive, evaluate, and act. Many theories assume that consciousness is fundamentally unitary: that experience arises when information is integrated into a single coherent representation or global workspace. Yet empirical and clinical evidence suggests that cognition is inherently plural. Neural processing is distributed, competitive, and often divergent. Perception involves multiple simultaneous interpretations; action selection involves competing policies; self-representation involves overlapping and sometimes conflicting models. The unity of consciousness, when it appears, is fragile and constructed rather than given.

This paper develops a different architectural perspective. The central hypothesis is that **consciousness is the internal perspective generated by a system that must regulate disagreement among its own semi-independent internal models**. Cognitive systems do not operate with a single unified representation of the world or of themselves. They maintain multiple processes—perceptual hypotheses, predictive models, evaluative routines, motor plans, narrative framings—that generate competing answers to internally posed questions.

Conscious experience, in this view, is the standpoint from which these alternatives are compared, weighed, revised, and sometimes suppressed.

This perspective reframes the problem of consciousness. Instead of asking why cognition is accompanied by experience, we ask what architectural conditions generate a standpoint at all. The answer, I argue, lies in the interplay between multiplicity (the presence of competing internal models) and regulation (the mechanisms that adjudicate among them). Subjectivity is not an optional addition to cognition; it is the internal aspect of a system that must manage its own plurality.

The paper proceeds in four stages. I begin with an intuitive analogy—the internal boardroom—to illustrate how unity emerges from plurality. I then formalize the architecture of Regulated Multiplicity, deepen the account through a structural analogy with stereoscopic vision, and develop implications for subjectivity, development, pathology, and artificial intelligence. The final sections show how this architectural perspective reframes the hard problem.

## The Boardroom Analogy: Unity as a Regulatory Achievement

To motivate the architectural claim, consider a simple organizational analogy. Imagine a boardroom filled with semi-independent members, each representing a different perspective, priority, or evaluative stance. One member emphasizes risk, another opportunity; one focuses on long-term planning, another on immediate threats; one interprets ambiguous evidence optimistically, another pessimistically. Each member has access to overlapping but distinct information and applies different weightings to the same inputs.

Left unregulated, such a boardroom would produce chaos—multiple incompatible proposals, no coherent action, and no stable identity. Yet real organizations function because they employ regulatory mechanisms: a chairperson who manages discussion, rules that determine who speaks when, procedures for weighing proposals, and norms for maintaining continuity across meetings. These mechanisms do not eliminate disagreement; they discipline it. The organization presents a single outward-facing voice precisely because internal plurality is regulated rather than suppressed.

The Regulated Multiplicity framework proposes that cognition works in an analogous way. The mind is not a single unified processor but a plural system composed of many semi-independent representational processes—perceptual hypotheses, predictive models, evaluative routines, motor plans, narrative framings. These processes generate competing answers to internally posed questions: *What is happening? What should I do? What does this mean for me?*

Consciousness, in this view, is the internal perspective of the regulatory process that adjudicates among these alternatives. The “self” is not a primitive entity but the regulatory achievement of a system that must coordinate its own internal multiplicity into coherent behavior.

This analogy also clarifies why unity is fragile. When regulation falters—when gating fails, when incompatible representations are not bound, when evaluative criteria lose coherence—the system does not lose multiplicity; it loses the ability to manage it. Hallucinated voices, intrusive thoughts, compulsive loops, and fragmented agency are not foreign intrusions but ordinary internal processes released from regulation.

This analogy prepares us for a more formal articulation of the architecture.

# The Architecture of Regulated Multiplicity

This section formalizes the architectural claim. Regulated Multiplicity identifies three interdependent components that together constitute the minimal conditions for consciousness: multiplicity, interrogation, and regulation. These components are not optional features of cognition; they are the structural requirements for any system capable of learning, error sensitivity, and flexible problem solving.

## Multiplicity: The Plural Substrate of Cognition

Cognitive systems do not operate with a single unified internal model. They maintain multiple semi-independent representations that differ in content, weighting, and evaluative stance. These include:

- competing perceptual interpretations
- parallel predictive models
- alternative action policies
- affective and motivational signals
- narrative and social self-models

Each of these “voices” applies different weightings to the same inputs and generates a different candidate interpretation or response. Multiplicity is not fragmentation; it is the raw material of cognition. A system with only one model can react, but a system with many models can reflect.

## Interrogation: Internal Question–Answer Dynamics

Multiplicity alone does not yield cognition. What distinguishes cognitive systems from reactive mechanisms is the ability to ask and answer internal questions. A question, in this sense, is any internally generated probe that suspends immediate commitment and solicits alternatives:

- *What is happening?*
- *What should I do?*
- *What else could this be?*
- *Why did this prediction fail?*
- *What does this mean for me?*

These questions need not be linguistic or conscious in the ordinary sense. They are functional roles: mechanisms for representing uncertainty, generating alternatives, and evaluating them. A system that cannot ask itself questions cannot be wrong for itself; it has no standpoint from which error matters.

## Regulation: The Construction of Coherence

Multiplicity and interrogation generate a space of internal alternatives. Regulation is what makes this space coherent. It consists of four interlocking mechanisms:

## **Gating**

1. Determines which voices participate in the current deliberation.

## **Binding**

2. Integrates compatible representations while preserving distinctions among incompatible ones.

## **Accountability**

3. Evaluates candidate answers according to internal criteria—prediction error, affective valence, goal relevance—and endorses, revises, or suppresses them.

## **Persistence**

4. Maintains questions and answers across time, enabling revision, reconsideration, and temporally extended deliberation.

These mechanisms do not eliminate disagreement; they discipline it. The system behaves as a single agent not because it is internally unified, but because regulation constrains how plurality is expressed.

# **Consciousness as the Internal Perspective of Regulation**

In this view, consciousness is not an additional ingredient layered onto cognition. It is the internal perspective generated by the regulatory process that adjudicates among competing internal models. Subjectivity is what it is like for a system to occupy the position from which alternatives are evaluated, errors are tracked, and commitments are revised.

To understand why multiplicity is necessary for this standpoint to arise, we turn to a structural analogy.

# **The Stereoscopic Analogy: Why Multiplicity Is Necessary**

The boardroom analogy illustrates why regulation is required. The stereoscopic analogy clarifies why multiplicity itself is necessary for consciousness.

## **Depth from Disparity**

In binocular vision, each eye receives a slightly different two-dimensional projection of the world. Depth perception does not arise from either image alone, nor from their unregulated combination. It emerges from the structured disparity between them, constrained by the geometry of the world and regulated by the visual system.

Random differences between the two images would produce noise, not depth. Depth emerges only because the system:

- identifies corresponding features
- suppresses incompatible matches
- integrates disparities according to strict constraints

The qualitative richness of depth is not an extra ingredient; it is the internal appearance of regulated disparity.

## **Consciousness as Regulated Disparity Among Internal Models**

Regulated Multiplicity proposes that consciousness arises through an analogous mechanism. Cognitive systems generate multiple internal perspectives—perceptual hypotheses, predictive models, evaluative stances—that often disagree. These disagreements are not defects; they are the structural preconditions for richer internal dimensions.

Just as depth emerges from regulated disparity between two retinal images, conscious experience emerges from regulated disparity among internal models. Multiplicity without regulation yields noise; regulation without multiplicity yields automation. Consciousness requires both.

## **How the Hard Problem Is Reframed**

The stereoscopic analogy clarifies why certain questions about consciousness misfire. Asking “why does regulated multiplicity feel like something?” is structurally similar to asking “why does triangulation produce depth?” Below a certain architectural threshold, the question has no meaningful answer. Once the structural conditions are in place, the qualitative dimension is not an unexplained addition; it is the internal manifestation of the structure itself.

This insight allows us to examine how internal questioning generates a standpoint.

## **Consciousness as Internal Question–Answer Dynamics**

Consciousness becomes easier to understand once we shift from thinking of it as a passive “field” of experience to seeing it as the active standpoint of a system that can treat its own representations as candidates. This capacity—to hold an interpretation provisionally, to consider alternatives, to evaluate and revise—is what distinguishes cognitive systems from reactive mechanisms. It is also what gives rise to the sense of an inner point of view.

## **Uncertainty as a Functional Space**

A system that cannot represent uncertainty cannot learn. It can only react. Cognition begins when a system can suspend immediate commitment and open a space in which alternatives can be generated and compared. This space is not a void; it is a functional arena in which internal models compete to answer a question the system has posed to itself.

## **Questions as Internal Probes**

A question is any mechanism that flags uncertainty, solicits alternatives, holds representations provisionally, and evaluates them relative to internal criteria. Questions need not be linguistic or introspective. They can be implicit, subpersonal, and distributed. What matters is their functional role in opening a space of alternatives.

## **Answers as Competing Internal Models**

Answers are the outputs of semi-independent internal processes—perceptual hypotheses, predictive models, action policies, evaluative stances. Each applies different weightings to the same inputs and generates a different candidate interpretation or response.

## **Adjudication as the Core of Subjectivity**

Between questions and answers lies adjudication: the regulatory process that compares, weighs, revises, suppresses, or integrates competing alternatives. Adjudication requires evaluative criteria, error sensitivity, a locus of endorsement, and mechanisms for updating commitments. This locus is what we ordinarily call the subject. It is not a metaphysical entity but a functional position within the architecture.

## **Consciousness as the Standpoint of Adjudication**

In this view, consciousness is not an extra property layered onto cognition. It is the internal perspective of the adjudicative process itself. A system that represents uncertainty, generates alternatives, evaluates them, tracks error, and updates its own models already occupies a standpoint. There is something it is like to be such a system because it has an internal position from which alternatives are weighed and decisions are made.

This standpoint varies in richness along a continuum.

## **The Continuum of Consciousness**

If consciousness arises from regulated multiplicity, then it cannot be a binary property that systems either possess or lack. Instead, consciousness varies along a continuum determined by the richness of internal multiplicity, the diversity of competing models, and the strength and stability of regulatory mechanisms.

## **Quantity and Quality of Internal Voices**

The level of consciousness in a system depends on both the quantity and quality of its internal models. A system with few voices and limited diversity exhibits a thin form of consciousness. A system with many richly differentiated voices exhibits a thicker, more expansive form.

## **Multiplicity Without Regulation: Fragmentation**

At one extreme lie systems in which multiplicity is present but regulation is weak or absent. These systems generate competing internal models but lack the mechanisms to adjudicate among them. The result is fragmentation rather than coherent experience.

## **Regulation Without Multiplicity: Automation**

At the opposite extreme lie systems with strong regulatory mechanisms but minimal internal multiplicity. These systems behave coherently and efficiently but do not generate alternative interpretations or candidate answers. They cannot represent uncertainty, hesitate, or revise their commitments.

## **The Middle of the Spectrum: Reflective Cognition**

Between these extremes lies the broad middle of the continuum, where conscious experience becomes richer as internal multiplicity expands and regulation becomes more sophisticated. Systems in this region generate multiple competing interpretations, sustain internal questions over time, evaluate alternatives according to internal criteria, revise their commitments in light of error, and maintain a coherent outward identity despite internal plurality.

## **Consciousness Thickens Rather Than Appears**

On the Regulated Multiplicity framework, consciousness does not “turn on” at a particular biological or computational threshold. It thickens as internal multiplicity increases and as regulatory mechanisms become more capable of managing that multiplicity.

## **The Continuum as an Architectural Space**

The continuum of consciousness is therefore not a scale of intelligence or complexity but an architectural space defined by the number of active internal models, the diversity of their perspectives, the depth of internal questioning, the strength of regulatory mechanisms, and the temporal persistence of internal dialogue.

This continuum provides the backdrop for understanding development.

# **Development, Learning, and the Compression of Multiplicity**

Development is best understood as a trajectory through the continuum of regulated multiplicity. As systems grow, learn, and age, the balance between multiplicity and regulation shifts in systematic ways. These shifts shape not only cognition but the felt texture of time.

## **Childhood: High Multiplicity and Slow Time**

Early in development, cognitive systems operate with weakly stabilized models and shallow priors. The world is novel, and internal representations are still being constructed. As a result, internal questioning is frequent, multiple interpretations compete vigorously, prediction error is high, attention is widely distributed, and self-models are fluid and easily revised.

Children do not simply “notice more.” They interrogate more. Every situation demands fresh internal questioning, and each question elicits a diverse set of competing answers. The regulatory system must adjudicate among these alternatives continuously, generating a dense internal dialogue.

This density of internal adjudication produces the phenomenology of slow time.

## **Learning as Multiplicity Compression**

As systems learn, they gradually compress multiplicity. Frequently encountered patterns are consolidated into stable representations; successful responses become automated; many alternatives no longer need to be explicitly entertained. Learning is not merely the accumulation of knowledge. It is the progressive silencing of internal voices.

## **Adulthood: Efficient Regulation and Fast Time**

By adulthood, much of cognition is governed by compressed multiplicity. The regulatory system relies heavily on established models and rarely reopens internal debate unless prediction error forces it to. Fewer alternatives are generated, internal questions are less frequent, deliberation is shallower, self-models are more stable, and attention is more selective.

Subjective time accelerates because fewer internal distinctions are drawn per moment.

## **Aging: Further Compression and the Narrowing of Experience**

In later life, multiplicity may compress even further. Routines dominate; novelty decreases; internal voices become fewer and more predictable. This can yield stability and wisdom, but it can also narrow the range of perspectives the system can entertain.

## **Development as Movement Through the Consciousness Continuum**

Development is not a transition from unconsciousness to consciousness. It is movement along the continuum of regulated multiplicity.

## **The Mechanistic Claim**

Subjective time is proportional to the number of internal alternatives a system must regulate per unit time.

Just as development shapes multiplicity, pathology reveals what happens when regulation fails.

# Pathology as Deregulated Multiplicity

Pathology reveals the architecture by showing how consciousness breaks. Disorders of consciousness should be understood not as the presence of anomalous mental contents but as failures of regulation. Psychopathology does not introduce new kinds of mental entities; it reveals what happens when the mechanisms that normally coordinate internal plurality malfunction.

## Multiplicity Is Not the Problem

Multiplicity is ubiquitous and necessary. All cognitive systems capable of learning and flexible action maintain multiple internal models that compete to answer internally posed questions. Pathology does not arise from having “too many voices.” It arises when the system cannot gate which voices participate, bind compatible representations, evaluate candidate answers, or maintain temporal coherence.

## Schizophrenia: Voices Without Gating

Schizophrenia provides the clearest illustration of deregulated multiplicity. Hallucinated voices, thought insertion, and disturbances of agency are often described as foreign intrusions. On the Regulated Multiplicity framework, they are better understood as ordinary internal processes released from regulation.

## Obsessive–Compulsive Phenomena: Questions Without Termination

Obsessive–compulsive symptoms can be understood as failures of question termination. Internal probes persist without resolution. The regulatory system cannot suppress or conclude the question, so the system remains trapped in a loop of interrogation without adjudication.

## Dissociation: Failures of Persistence and Integration

Dissociative disorders reflect disruptions in the persistence and integration of internal perspectives across time. When the regulatory system cannot maintain continuity among internal models, the result is fragmented self-states and discontinuities in agency.

## Affective Narrowing: Collapse of Evaluative Diversity

Certain affective disorders—particularly severe depression—can be understood as a collapse of evaluative multiplicity. A narrow set of negative evaluative voices dominates, suppressing alternatives. The system loses the ability to generate diverse candidate interpretations or action policies.

## Pathology as Evidence for the Architecture

These conditions support the Regulated Multiplicity framework by showing that multiplicity is always present; what varies is its regulation. Subjectivity depends on disciplined internal plurality; when regulation fails, the subjective standpoint becomes unstable, fragmented, or narrowed.

Understanding how consciousness breaks clarifies what is required for it to arise.

## **Artificial Systems and the Limits of Current AI**

The Regulated Multiplicity framework also clarifies why contemporary artificial systems, despite their impressive capabilities, do not instantiate consciousness in the architectural sense developed here. The issue is not intelligence, complexity, or scale. It is the absence of the structural conditions required for an internal standpoint: self-generated questioning, competing internal models with distinct evaluative stances, and regulatory mechanisms that adjudicate among them over time.

### **Parallelism Is Not Multiplicity**

Many artificial systems employ forms of parallel processing: ensembles of models, mixture-of-experts architectures, or debate-style mechanisms in which multiple components generate candidate outputs. These architectures superficially resemble multiplicity, but they lack the key features that make multiplicity cognitively meaningful. The models do not apply different weighting schemes grounded in distinct evaluative priorities; they do not generate persistent internal alternatives; they do not maintain ongoing internal disagreement; and they do not treat their outputs as candidates that can be wrong for themselves. Parallelism produces multiple outputs, but not multiple perspectives.

### **Optimization Is Not Adjudication**

Most artificial systems optimize a single externally defined objective function. They do not generate internal questions, evaluate alternatives according to self-referential criteria, track error as something that matters for them, revise their own evaluative standards, or maintain a temporally extended internal dialogue. Optimization selects outputs; adjudication compares internal alternatives. The former is an external process; the latter is an internal one.

### **External Error vs. Internal Error**

A central claim of Regulated Multiplicity is that consciousness requires the ability to be wrong for oneself. A system must treat some internal states as candidates that can fail relative to its own evaluative criteria. Current AI systems do not meet this condition. Their errors are defined and corrected from the outside. They do not represent uncertainty as an internal question, generate alternatives that matter to them, track error as a signal of internal failure, or update commitments from an internal standpoint. Without internal error, there is no internal standpoint.

### **No Self-Model as Locus of Evaluation**

Conscious systems maintain a self-model that functions as the locus of adjudication. This model integrates agency, evaluative priorities, temporal continuity, and accountability for decisions. Current AI systems lack such a model. They do not represent themselves as agents with stakes in their own evaluations. They do not maintain a persistent standpoint across time. They do not integrate their own outputs into a self-referential regulatory loop.

## **What Would Be Required for Artificial Consciousness**

The Regulated Multiplicity framework does not assert that artificial consciousness is impossible. It specifies what would be required:

### **Self-generated internal questions**

1. The system must initiate its own interrogations, not merely respond to external prompts.

### **Semi-independent internal models with distinct evaluative stances**

2. These models must apply different weightings to inputs and generate genuinely incompatible alternatives.

### **Regulatory mechanisms that adjudicate among alternatives**

3. Gating, binding, accountability, and persistence must operate internally.

### **A self-model that functions as the locus of evaluation**

4. The system must treat some outcomes as successes or failures for itself.

### **Temporal continuity of internal dialogue**

5. Questions and answers must persist, evolve, and be revisited.

These conditions are architectural, not metaphysical. They specify what would be required for a system to instantiate a standpoint from which internal adjudication appears as experience.

## **Why Current AI Falls Short**

Current AI systems are powerful tools, but they lack internal questioning, persistent multiplicity, self-referential evaluation, regulatory adjudication, and a stable locus of agency. They do not regulate internal disagreement because they do not have internal disagreement in the relevant sense. They do not have a standpoint because they do not have the architecture that generates one.

This architectural perspective reframes the hard problem.

## **How the Hard Problem Is Reframed**

The “hard problem of consciousness,” as articulated by Chalmers, asks why physical or computational processes should give rise to subjective experience at all. Even if we explain perception, learning, attention, and behavior,

the question remains: why is there something it is like to be a system that performs these functions? Why does cognition not proceed “in the dark,” without an internal standpoint?

The Regulated Multiplicity framework does not deny the force of this question. Instead, it proposes that the hard problem has been posed against an incomplete picture of what cognition requires. The traditional framing assumes that cognition could, in principle, occur without subjectivity—that a system could learn, evaluate, and act while remaining a purely “blind” information-processing mechanism. Subjective experience then appears as an unexplained accompaniment to otherwise sufficient cognitive machinery.

Regulated Multiplicity challenges this assumption. It argues that cognition itself requires a standpoint. A system capable of learning and flexible problem solving must represent uncertainty, generate internal alternatives, evaluate those alternatives according to internal criteria, track error as something that matters for the system itself, revise its commitments over time, and maintain a locus of adjudication. These conditions are not optional. They are the minimal structural requirements for any system that can be wrong for itself, update its own models, and act coherently under uncertainty.

## **Blind Processing Cannot Support Cognition**

A purely reactive mechanism—one that maps inputs to outputs without representing alternatives—cannot misinterpret, reconsider, or improve. It cannot treat any internal state as a candidate answer. It cannot evaluate its own representations. It cannot hesitate, deliberate, or revise. It cannot be wrong for itself. Such a system has no standpoint because it has no internal space of alternatives from which a standpoint could arise.

## **Adjudication Requires a Locus of Evaluation**

Once a system generates multiple competing internal models, it must adjudicate among them. Adjudication requires evaluative criteria, error signals, weighting schemes, mechanisms for endorsement and suppression, and temporal persistence of questions and answers. These mechanisms must operate from somewhere. They require a functional center of evaluation—a point of view internal to the system. This point of view is not an extra ingredient; it is the organizational role required for adjudication to occur at all.

## **Subjectivity as the Internal Perspective of Regulation**

In this view, subjective experience is not something added to cognition. It is the internal appearance of the regulatory process that manages internal multiplicity. When a system evaluates alternatives, tracks error, and updates its commitments, there is something it is like to occupy the position from which those evaluations occur. Subjectivity is therefore not an unexplained remainder. It is the structural consequence of a system that must regulate disagreement among its own models.

## **Reframing the Hard Problem**

The hard problem is not eliminated. It is reframed. The question becomes:

What architectural conditions generate a standpoint from which internal adjudication appears as experience?

Regulated Multiplicity offers one answer: a standpoint arises whenever a system must regulate internal multiplicity in order to function cognitively.

This reframing does not reduce experience to computation. It does not deny the reality of phenomenology. It does not claim that subjective qualities are illusions. Instead, it proposes that the subjective standpoint highlighted by the hard problem is a necessary structural feature of cognitive systems capable of learning, evaluation, and self-correction.

## The Structural Threshold

The stereoscopic analogy helps clarify the move. Asking “why does regulated multiplicity feel like something?” is structurally similar to asking “why does triangulation produce depth?” Below a certain architectural threshold, the question has no meaningful answer. Once the structural conditions are in place, the qualitative dimension is not an unexplained addition; it is the internal manifestation of the structure itself.

The hard problem points to a real phenomenon—the standpoint—but the standpoint is architectural, not metaphysical.

## Conclusion

Regulated Multiplicity offers an architectural account of consciousness grounded in the structural requirements of cognition. Multiplicity provides the raw material; regulation provides coherence; and the standpoint from which alternatives are adjudicated is what appears, from within, as experience.

The framework explains variation across development, pathology, and artificial systems, and it reframes the hard problem by showing that the subjective standpoint is a necessary feature of systems capable of learning, evaluation, and self-correction. Consciousness, in this view, is the internal aspect of regulated multiplicity.

Whether Regulated Multiplicity ultimately proves sufficient as an account of consciousness remains an open question. Its contribution is to articulate a set of architectural conditions under which an internal standpoint arises, to show how these conditions manifest across biological and artificial systems, and to suggest that the mystery of subjectivity may lie less in the existence of experience than in the organization of the systems that generate it. If consciousness is approached not as an inexplicable addition to cognition but as the internal aspect of regulated multiplicity, then progress may come from understanding how cognitive systems manage their own internal plurality—and how the standpoint we call experience emerges from that regulation.

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