The Eruptive Manifestation of Model–Reality Mismatch: A Unified Structural Framework for High-Activation Episodes in Bounded Adaptive Systems

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Abstract

This paper presents a structural framework for understanding high-activation episodes in bounded adaptive systems, termed the Eruptive Manifestation of Model–Reality Mismatch (EMMRM). The framework reconceptualizes the phenomenon commonly labeled "anger" not by claiming novelty in discrepancy-detection (a mechanism well-established in appraisal theories) but by systematically shifting the interpretive frame from moral-evaluative to diagnostic-structural. EMMRM arises when model–reality discrepancy exceeds tolerance thresholds while carrying boundary significance—threatening identity, control, or essential constraints. The paper addresses the phenomenon's structural preconditions, its dual manifestation patterns (acute eruption and chronic corrosive leakage), the paradox of pleasurable activation and emergent state-dependence, the masking of vulnerability states, cognitive effects following established arousal-performance relationships, cultural mechanisms for formatting activation into structured expression, and transformation pathways that convert activation energy into adaptive work. The formal expression $A = f(D, B, R^{-1})$ is offered as a conceptual schema organizing relationships between discrepancy, boundary weight, and regulatory capacity—not as a quantitative model awaiting operationalization, but as a heuristic clarifying intervention points. The framework's value lies not in predictive novelty but in integrative reframing: treating high-activation states as informational signals and energetic resources rather than moral failings, thereby opening different practical responses than traditional approaches centered on suppression or moral correction.

Keywords: model–reality mismatch, bounded adaptive systems, boundary violation, high-activation states, regulatory capacity, discharge pathways, cultural formatting, structural signal theory, adaptive reconfiguration, appraisal theory, emotion regulation

1 Introduction

1.1 The Broader Research Program

This paper is part of a wider theoretical program aimed at formalizing phenomena traditionally classified as "emotions" within a unified structural framework for adaptive systems. The goal is not to deny the subjective reality of emotional experience, nor to reduce human psychology to mechanism, but to identify the *functional architecture* underlying these phenomena—architecture that can be analyzed, compared across domains, and potentially engineered.

The program rests on a foundational observation: what we call "emotions" in folk psychology are not arbitrary subjective colorations of experience but *system-level signals* that serve specific functions in maintaining, protecting, and adapting bounded systems operating in complex environments. Fear signals threat requiring avoidance or preparation. Disgust signals contamination requiring rejection. Grief signals loss requiring model reconfiguration. And anger—the focus of this paper—signals boundary-significant discrepancy requiring corrective action.

Once this functional interpretation is adopted, a question arises: are these signals unique to human psychology, or do they represent instantiations of more general principles governing any adaptive system? The research program hypothesizes the latter. It seeks to identify the abstract functional architecture underlying each major "emotional" phenomenon and to demonstrate structural equivalence across biological, social, organizational, and potentially artificial systems.

1.1.1 The Sequence of System Responses to Threat

A critical insight emerges from examining how systems respond to severe, potentially catastrophic discrepancy. The response is not a single reaction but a *sequence* of distinct phases, each with its own function.

Elisabeth Kübler-Ross's (1969) model of grief stages—originally describing responses to terminal diagnosis—can be reinterpreted as a general sequence of system responses to catastrophic model-reality mismatch. This interpretation aligns with the **Viability Mismatch Law** (Kriger, 2026a), which formalizes how viable systems respond to demand-resource imbalance:

Stage	Kübler-Ross Term	System Function	EMMRM Relevance
1	Denial	Reject discrepancy signal	Pre-EMMRM: PIRP-like rejection
2	Anger	Mobilize for correction	**EMMRM activation**
3	Bargaining	Partial model updates	Post-EMMRM: transformation
4	Depression	Energy withdrawal	Failed EMMRM
5	Acceptance	Complete reconfiguration	Resolution: E_e updated

Table 1: Kübler-Ross stages as system responses to catastrophic mismatch

This sequence reveals that **EMMRM (anger) is not an isolated phenomenon but a specific phase in the system's response to severe threat**. When denial (Stage 1) fails to block the discrepancy signal, the system escalates to EMMRM (Stage 2)—mobilizing energy to *correct* the discrepancy by forcing reality to conform to the model.

The critical insight: **EMMRM represents the system's attempt to resolve discrepancy by changing E_o (reality) rather than E_e (model)**. It is the energetic mobilization phase that precedes the cognitive work of model updating. Only when EMMRM fails—when corrective action cannot eliminate the discrepancy—does the system proceed to bargaining (partial update), depression (energy depletion), and finally acceptance (complete model reconfiguration).

1.1.2 Complementary Principles in the Program

The Pre-Integrative Rejection Principle (PIRP) represents the first line of defense (Kriger, 2026b). PIRP formalizes the rapid rejection mechanism present in all self-maintaining systems—a mechanism that excludes potentially incompatible inputs before full analytical processing occurs. In human experience, this mechanism manifests as disgust, immediate moral rejection, and the automatic dismissal of norm-violating or identity-threatening stimuli.

EMMRM and PIRP are thus sequential rather than merely complementary:

1. **PIRP (Denial):** Attempt to reject/filter the discrepancy signal. Function: prevent integration of threatening information.

2. **EMMRM (Anger):** When PIRP fails, mobilize for corrective action. Function: eliminate discrepancy by changing reality.

3. **Transformation (Bargaining → Acceptance):** When EMMRM fails, reconfigure internal model. Function: eliminate discrepancy by changing expectations.

Together, these principles describe the complete response sequence:

$$\text{Discrepancy} \to \text{PIRP} \to \text{[if fails]} \to \text{EMMRM} \to \text{[if fails]} \to \text{Transform}$$

1.1.3 The Comparative Asymmetry Principle

A third principle in the program addresses a specific but pervasive source of discrepancy: **comparison with other agents**.

The **Comparative Asymmetry Principle (CAP)** (Kriger, 2026c) formalizes how self-evaluating agents generate internal disequilibrium through observation of others. When an agent perceives another agent as closer to its desired state than itself, this generates *comparative perturbation* (Π)—a measurable behavioral change distinct from deficit-driven motivation.

The critical insight: **CAP describes a specific mechanism for generating the discrepancy (D) that triggers EMMRM**.

Principle	Function	Generates	Leads To
PIRP	Filter incompatible inputs	Rejection signal	Boundary protection
CAP	Compare self to others	Comparative perturbation	Relational discrepancy
EMMRM	Respond to boundary-significant D	High-activation	Corrective action

Table 2: Complementary principles in the adaptive systems program

The relationship is causal: CAP can *cause* EMMRM. When comparative perturbation crosses the boundary-significance threshold, it triggers EMMRM activation. What folk psychology calls "envy turning to anger" is precisely this transition.

In the *runaway regime* ($\rho \to 1$), the desired state R^* tracks observed others, producing chronic discrepancy and chronic EMMRM activation risk. The **Structural Distortion Principle** (Kriger, 2026d) explains why this tracking is systematically biased: bounded cognitive systems maintain world-models through attention-perception loops that amplify certain signals while attenuating others.

1.2 Why Formalization Matters

The objection will immediately arise: why formalize what everyone already understands intuitively? Why replace "anger" with "EMMRM"?

The answer lies in the difference between folk understanding and structural analysis. Folk psychology tells us that people get angry when they are wronged, and that anger can be destructive or motivating. This is true but imprecise. It does not tell us:

- What exactly triggers the phenomenon (boundary-significant discrepancy, not mere frustration)
- Why the same phenomenon appears in non-human systems (structural equivalence, not mere analogy)
- What determines whether outcomes are destructive or constructive (pathway selection, not character)

- How the phenomenon relates to other "emotional" signals (complementary architecture)
- What intervention points exist for modification (threshold calibration, regulatory capacity)

Formalization makes these questions answerable. It transforms vague intuitions into testable claims. It reveals connections invisible to folk categories. It enables engineering—the deliberate design of systems with appropriate activation characteristics.

1.3 Relation to Existing Literature

The framework builds on and integrates existing theoretical traditions rather than replacing them.

Appraisal theories (Arnold, 1960; Lazarus, 1991; Scherer, 2001) established that emotions arise from cognitive evaluations of events relative to goals and concerns. EMMRM's discrepancy-detection component directly incorporates this insight.

Philosophical treatments from antiquity remain relevant. Aristotle's analysis in the *Nicomachean Ethics* distinguishes appropriate from excessive anger based on proportionality to offense. Seneca's Stoic critique in *De Ira* emphasizes the destructive potential of unregulated activation. Contemporary virtue ethics (Nussbaum, 2001) and emotion theory (Solomon, 1993; Prinz, 2004) continue these debates.

Neuroscientific research on prefrontal-amygdala dynamics (Davidson, 2000; Ochsner & Gross, 2005) provides biological grounding for the regulatory capacity construct (R).

Arousal-performance relationships were characterized by Yerkes & Dodson (1908) and have been refined through subsequent research (Hanoch & Vitouch, 2004).

2 Structural Preconditions

Any adaptive system operates through an internal predictive model M encoding expected environmental configurations relative to goals, values, constraints, and boundaries. Let E_e represent the expected state derived from M, and E_o the observed state. Discrepancy is represented as:

$$D = \|E_o - E_e\| \tag{1}$$

EMMRM arises when discrepancy exceeds tolerance threshold τ and carries boundary significance. The activation condition:

$$\text{EMMRM} \iff D \cdot B > \tau \tag{2}$$

where B encodes boundary weight—how strongly the mismatch threatens identity, values, control, or essential needs.

This formulation unifies triggers traditionally listed separately:

- "Anger from boundary violation" $\rightarrow$ protected boundary in M has been crossed
- "Anger from loss of control" $\rightarrow$ control parameter displaced outside acceptable range
- "Anger from unmet expectations" $\rightarrow$ prediction error with high B
- "Anger from frustrated needs" $\rightarrow$ constraint violations accumulating until eruption threshold

2.1 On the Circularity Objection

A potential objection: if boundary significance (B) is inferred from the intensity of the activation response, the framework is circular. The objection has force but can be addressed. Boundary significance can be prospectively identified through:

- **Stated values and commitments:** A person who explicitly values autonomy can be predicted to show high B for autonomy-threatening discrepancies before any activation occurs.
- **Historical patterns:** Past activation episodes reveal which boundaries carry weight.
- **Cultural and role analysis:** Professional identity, group membership, and cultural context indicate which boundaries are likely significant.
- **Physiological indicators:** Anticipatory arousal and attention allocation can indicate boundary significance before full activation.

3 Boundary Significance Elaborated

Not all model–reality discrepancies trigger EMMRM. Mundane prediction errors—a detour, an out-of-stock item—typically do not. What distinguishes EMMRM-triggering discrepancies is their interpretation as: intrusion on protected territory, disrespect to valued identity, illegitimate constraint on agency, betrayal of relied-upon expectation, or destabilization of a control variable.

3.1 Development of Boundary Weightings

Boundary significance is not static. It develops through:

- **Attachment history:** Early experiences of safety and violation shape which boundaries become heavily weighted (Bowlby, 1969; Ainsworth et al., 1978).
- **Trauma:** Overwhelming violations can produce hyperweighting of related boundaries.
- **Cultural learning:** Socialization teaches which boundaries warrant defense.
- **Explicit commitment:** Chosen values and identities create new boundaries.

3.2 Threshold Variation

Tolerance threshold τ also varies:

- **Across individuals:** Temperament, developmental history, and current regulatory capacity affect baseline thresholds.
- **Within individuals over time:** Fatigue, stress accumulation, and resource depletion lower thresholds.
- **Across contexts:** Social settings, role expectations, and perceived safety modulate thresholds.

4 Energetic Mobilization

When EMMRM is triggered, the system enters high-activation state characterized by resource reallocation from reflective evaluation toward immediate corrective output. This is energetic mobilization: a high-power mode prioritizing mismatch elimination over nuanced inference.

In this mode, local rationality narrows. The system becomes rational with respect to one objective—reducing discrepancy—while becoming irrational with respect to long-range consequences, relational maintenance, and comprehensive evaluation.

4.1 Neurobiological Correlates

The regulatory capacity construct (R) maps onto prefrontal-amygdala dynamics studied extensively in affective neuroscience (Davidson et al., 2000; Ochsner & Gross, 2005). Amygdala activation drives rapid threat-related responding; prefrontal regions enable reappraisal, inhibition, and flexible response selection.

5 Divergent Processing Pathways

Following EMMRM activation, two fundamentally different pathways are available:

The Discharge Pathway releases activation energy outward without analysis—verbal aggression, physical action, destructive expression. This pathway often amplifies instability rather than resolving discrepancy.

A structural constraint from the **Unified Theory of Self-Organizing Systems** (Kriger, 2017) applies here: in peer systems with shared environment and repeated interaction, antagonistic behavior requires continuous external perturbation to maintain.

The Transformation Pathway redirects activation into restructuring either environment (bringing E_o toward E_e) or internal model (adjusting E_e to accommodate E_o). This pathway treats activation as informational and energetic.

5.1 Pathway Determinants

What determines pathway selection?

- **Regulatory capacity (R):** Higher R enables delay between activation and expression.
- **Learned habits:** Repeated discharge strengthens discharge pathways.
- **Contextual affordances:** Some environments support transformation, others invite discharge.
- **Explicit skills:** Cognitive reappraisal techniques increase transformation pathway accessibility.

6 The Paradox of Pleasurable Activation and State-Dependence

A frequently overlooked dimension: some systems experience EMMRM not as purely aversive but as pleasurable. High activation produces transient sense of power, control, and salience.

Over time, state-dependence can develop: the system learns that high activation reliably produces feelings of significance and agency. The mismatch trigger becomes secondary; the activation state becomes sought product.

State-dependent systems may:

- Select situations likely to create mismatch

- Interpret ambiguous stimuli as boundary violations
- Maintain chronic low-grade grievance to sustain activation access
- Resist resolution of disputes that would terminate activation

7 Activation as Mask for Vulnerability

EMMRM frequently functions as substitute state masking underlying vulnerability. When fear, grief, uncertainty, shame, or helplessness threaten self-image or control sense, EMMRM provides an alternative state that feels stronger and more externally directed.

This is state substitution: replacing a low-power, exposure-heavy condition with a high-power, outward-directed condition.

Clinical literature recognizes anger as frequent "secondary emotion" covering primary emotions of hurt, fear, or shame (Greenberg, 2002). The EMMRM framework provides structural interpretation.

8 Cognitive Effects of Activation

The relationship between EMMRM intensity and cognitive performance follows an inverted-U pattern, consistent with the Yerkes-Dodson law (Yerkes & Dodson, 1908).

Moderate activation can enhance performance: sharpened focus, increased persistence, elevated motivation.

Excessive activation degrades performance: processing saturation, precision collapse, noisy error-prone outputs.

9 Cultural Formatting Mechanisms

Human cultures have developed sophisticated mechanisms for shaping EMMRM expression—what we term *cultural formatting*. These constitute regulatory overlays determining permissible output channels, acceptable amplitudes, and recovery protocols.

Different cultural contexts produce different formatting rules:

- **Direct-expression cultures** normalize open confrontation.
- **Indirect-expression cultures** impose politeness norms inhibiting direct emission.
- **Honor-linked cultures** connect confrontation to expectations of follow-through.

9.1 The Haka as Formatting Technology

A particularly instructive example is the haka of the Māori people—a practice demonstrating *ritualization*: converting raw activation into synchronized, rule-governed expression.

An essential caveat: The haka is not merely an illustration of a theoretical point. It is a living cultural practice with specific meanings and functions within Māori society that exceed any structural analysis.

With that limitation acknowledged: the haka channels high activation into a structured container—specific movements, vocalizations, collective synchronization—transforming potentially chaotic discharge into coordinated performance.

10 Philosophical Treatments Revisited

The EMMRM framework engages philosophical tradition not as historical curiosity but as ongoing resource for addressing normative questions.

10.1 Aristotle's Proportionality

Aristotle's analysis distinguishes appropriate from excessive anger based on proportionality to offense, correctness of target, and appropriateness of duration. In EMMRM terms: activation is justified when boundary significance (B) is genuine, discrepancy (D) is accurately perceived, and response intensity is calibrated.

10.2 Seneca's Stoic Critique

Seneca's *De Ira* treats anger as intrinsically problematic. In EMMRM terms: Seneca emphasizes the discharge pathway's destructiveness and implicitly advocates model-updating as primary resolution strategy.

10.3 Contemporary Extensions

Martha Nussbaum (2016) argues that anger contains an inherently problematic "payback wish." **Jesse Prinz** (2004) offers a neo-Jamesian embodied account. **Robert Solomon** (1993) treats emotions as judgments and strategies.

The EMMRM framework does not adjudicate these normative debates but clarifies their object.

11 Consequences of Unregulated Discharge

When high activation expresses as uncontrolled discharge, systemic damage ensues:

- **Relational infrastructure destruction:** Discharge depletes trust, safety, cooperation, and coordination capital.
- **Escalation dynamics:** Discharge invites counter-discharge.
- **Professional and material consequences:** Unregulated discharge damages career trajectories.
- **Long-term stress accumulation:** Chronic activation carries cumulative biological costs.

12 Critique of Suppression

If unregulated discharge produces destruction, suppression might seem the alternative. The framework reveals suppression as inadequate.

Suppression inhibits outward discharge without transforming underlying mismatch. Energy seeking expression finds alternative channels: sarcasm, passive antagonism, strategic silence, cold hostility, relational erosion.

In formal terms: suppression is not resolution but internalization of unresolved discrepancy, typically degrading regulatory capacity (R) over time.

13 Transformation Pathways

The alternative to both unregulated discharge and suppression is transformation: redirecting activation energy into structured work.

Transformation requires two cognitive operations:

1. **Identification:** What expectation was violated? What boundary was crossed?
2. **Decision:** Alter environment (bring E_o toward E_e) or update model (adjust E_e to accommodate E_o)?

13.1 Transformation Channels

- **Creative output:** Art, writing, music convert activation energy into structured production.
- **Physical exertion:** Vigorous physical activity dissipates excess activation.
- **Reflective analysis:** Examination of triggering discrepancy can update expectations.
- **Social action:** Activation can power reform efforts.

14 Formal Expression as Conceptual Schema

The framework's relationships can be summarized:

$$A = f(D, B, R^{-1}) \tag{3}$$

where:

- A = EMMRM intensity
- D = structural discrepancy (model–reality divergence magnitude)
- B = boundary weight (significance of violated expectation)
- R = regulatory capacity (ability to delay discharge and route energy into transformation)

14.1 What the Schema Does

It organizes relationships: activation increases with discrepancy and boundary weight; outcomes become more destructive as regulatory capacity decreases.

It identifies intervention points:

- Reduce D: resolve actual discrepancies, address root causes
- Recalibrate B: reconsider which boundaries warrant protection
- Increase R: develop regulatory capacity through practice

15 Operationalization of EMMRM Components

This section addresses the operationalization criticism directly by providing operational definitions for each component.

15.1 Operationalizing Discrepancy (D)

Domain	System	Discrepancy Measure	Units
Cognitive	Human mind	Prediction error magnitude	μV; Likert
Physiological	Organism	Deviation from homeostasis	°C, mmHg
Immune	Immune system	Antigen load × affinity	Molecules/mL
Organizational	Institution	Gap between expected/actual KPIs	%, currency
Thermodynamic	Physical system	Deviation from equilibrium	Joules, Kelvin
Computational	AI system	Loss function value	Numerical

Table 3: Operational measures for discrepancy by domain

15.2 Testing the Formal Relationship

The formal expression $A = f(D, B, R^{-1})$ generates quantitative predictions:

Prediction 1: Holding B and R constant, A increases monotonically with D.

Prediction 2: Holding D and R constant, A increases monotonically with B.

Prediction 3: Holding D and B constant, A increases as R decreases.

Prediction 4: The interaction $D \times B$ predicts A better than either alone.

These predictions are empirically testable and falsifiable.

16 Cross-System Manifestations

A strong claim of the EMMRM framework is structural universality. This section examines manifestations across the full spectrum of systems.

16.1 Physical Systems

Physical systems exhibit EMMRM-analogous phenomena when accumulated discrepancy between actual and equilibrium states exceeds threshold.

16.1.1 Thunderstorms

System: Atmospheric system
Discrepancy (D): Potential difference between cloud base and ground
Threshold (τ): Dielectric breakdown voltage of air (~3 MV/m)
Activation (A): Lightning discharge (1–5 billion joules in microseconds)

16.1.2 Volcanic Eruptions

System: Magmatic system
Discrepancy (D): Pressure differential
Threshold (τ): Structural strength of overlying rock
Activation (A): Eruption (potentially 10^{24} joules)

16.1.3 Supernova Explosions

System: Stellar core
Discrepancy (D): Imbalance between gravitational and supporting pressure
Threshold (τ): Chandrasekhar limit (~1.4 solar masses)
Activation (A): Supernova explosion (10^{44} joules in seconds)

16.2 Biological Systems

16.2.1 Cellular Stress Response

The cellular stress response represents EMMRM at the molecular level: accumulated deviation from expected conditions triggers rapid mobilization of corrective machinery.

16.2.2 Action Potential

The action potential is EMMRM at the millisecond timescale: accumulated depolarization triggers explosive discharge when threshold is crossed.

16.2.3 Immune Inflammation

Inflammation exemplifies the dual-pathway structure: moderate activation enables pathogen clearance (transformation); excessive activation produces sepsis and tissue destruction (discharge pathology).

16.3 Artificial Systems

Modern AI systems increasingly exhibit EMMRM-analogous dynamics. This connection is not accidental: the **Evolutionary Inevitability of Predictive Processing** argument (Kriger, 2026e) establishes that any adaptive system with processing latency must maintain predictive models.

Design implications: Robust AI systems should have:

- Explicit discrepancy monitoring
- Boundary significance weighting
- Threshold-based activation
- Multiple pathways (transformation, discharge, escalation)
- Calibrated thresholds

16.4 Structural Equivalence Table

Type	**System**	E_e	**D**	τ	**A**	**R**
Physical	Atmosphere	Equilibrium	Potential diff.	Breakdown	Lightning	$\sim$0
Physical	Stellar	Hydrostatic eq.	Grav. imbalance	Chandr. limit	Supernova	0
Biological	Neuron	Resting potential	ΔV_m	-55mV	Action pot.	Low
Biological	Immune	Sterile state	Antigen load	PRR threshold	Inflammation	Moderate
Biological	Organism	Boundary integrity	Violation	Individual	Anger	Variable
Artificial	AI system	Training dist.	Pred. error	Detection	Mobilization	Designed
Social	Market	Fund. value	Bubble	Confidence	Crash	Moderate

Table 4: Structural equivalence across system types

16.5 What Universality Means

The claim is **structural**, not phenomenological:

1. **Structural equivalence:** The same abstract architecture appears across systems regardless of substrate.
2. **Emergent elaboration:** More complex systems elaborate the basic architecture by adding regulatory capacity and transformation pathways.

3. **Explanatory unification:** Phenomena that appear unrelated share underlying structural dynamics.

4. **Predictive power:** The framework predicts that any system exhibiting discrepancy accumulation and threshold dynamics will show EMMRM-like phenomena.

17 Limitations and Future Directions

17.1 Acknowledged Limitations

- **Empirical validation:** Operational definitions require experimental confirmation.
- **Cross-domain calibration:** Comparing constructs across radically different systems requires careful attention to dimensional analysis.
- **Physical system boundary cases:** The extension to physical systems may stretch the framework's intended scope.
- **Developmental incompleteness:** The framework acknowledges developmental factors but does not provide detailed developmental theory.

17.2 Future Directions

- **Empirical investigation:** Do individuals with more explicit boundary awareness show better regulation?
- **Clinical application:** Addressing state-dependence, surfacing masked vulnerability, building regulatory capacity.
- **Organizational extension:** Whether EMMRM-analogous phenomena occur in organizations.
- **Cross-cultural comparison:** Systematic comparison of cultural formatting mechanisms.

18 Conclusion

The Eruptive Manifestation of Model–Reality Mismatch represents one component of a broader theoretical program aimed at formalizing phenomena traditionally classified as "emotions" within a unified structural framework for adaptive systems.

18.1 Summary

EMMRM is a structural signal accompanying boundary violation in bounded adaptive systems: providing both diagnostic information and energetic resources for corrective action. EMMRM is neither pathological nor virtuous in itself. Its consequences depend on processing: discharge devastates, suppression corrodes, transformation enables reconfiguration and growth.

18.2 Relationship to the Broader Program

This paper should be read in conjunction with the Pre-Integrative Rejection Principle (PIRP) (Kriger, 2026b) and the Comparative Asymmetry Principle (CAP) (Kriger, 2026c). Together, these describe the core components of adaptive system architecture:

Principle	Function	Human Manifestation	System Role
PIRP	Filter inputs	Disgust, rejection	Boundary protection
CAP	Generate comparative D	Envy, status anxiety	Relational calibration
EMMRM	Mobilize correction	Anger, outrage	Alarm & mobilization

Table 5: Integrated architecture of adaptive system signaling

The research program will continue with formal treatments of additional "emotional" phenomena: fear, grief, shame, and acceptance.

18.3 The Value of Formalization

Folk understanding of anger is adequate for everyday navigation but insufficient for:

- Cross-system comparison (identifying structural equivalence across domains)
- Intervention design (knowing which parameters to modify)
- Failure analysis (diagnosing miscalibration pathologies)
- System engineering (designing artificial systems with appropriate activation characteristics)

Formalization transforms intuitions into tools. EMMRM, properly understood, is neither enemy nor friend but a fundamental feature of adaptive existence that rewards wise handling with improved adaptation and punishes neglect with accumulated destruction.

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