

# **$\Delta\Gamma$ - Metamnesis Framework – Table of Contents**

Abstract

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## **III. BINDING ACKNOWLEDGMENT AND QUALIA**

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### **III.B Qualia as $\Delta\Gamma$ Dynamics: The Red Apple Example Stage 0: Memory States $M(t)$**

Stage 1: First-Order Acknowledgment  $\Gamma(t)$

Stage 2: Second-Order Acknowledgment  $\Delta\Gamma(t)$  — Qualia Candidates

Stage 3: Unified

Phenomenology  $O(t)$  — Binding via Covariance

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### **III.C From Discrete to Continuous: The Covariance Bridge**

### **III.D Phenomenal Salience and Binding Transitions**

### **III. E Binding Failures and Disorders of Consciousness**

Case 1: Illusory Conjunctions (Treisman & Schmidt 1982)

Case 2: Prosopagnosia (Duchaine & Nakayama 2006)

Case 3: Balint's Syndrome (Balint 1909; Coslett & Saffran 1991)

Case 4: Capgras Syndrome (Capgras & Reboul-Lachaux 1923; Ellis & Young 1990)

Case 5: Vegetative State / Unresponsive Wakefulness Syndrome (Owen et al. 2006)

Case 6: Psychedelic States (Carhart-Harris et al. 2016)

## **IV. EMPIRICAL VALIDATION AND PREDICTIONS**

### **IV.A Musical Covariance: Mathematical Details and Extended Analysis**

Stage 1: Discrete Sources Discrete Memory States  $M_i(t)$

Stage 2: First-Order Dynamics  $\Gamma_i(t) = dM_i/dt$

Stage 3: Second-Order Dynamics  $\Delta\Gamma_i(t) = d^2M_i/dt^2$  — Qualia Candidates

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Stage 4: Unified Musical Phenomenology  $0\_music(t) = Cov(\Delta\Gamma\_i)$

Testable Prediction: Musical Chills as Binding Transitions

Why Music? Advantages Over Vision for Testing Ar Framework

### **IV.B Inverse Turing Test: Computational Validation of Ar-Based Metamnesia**

Experimental Design

Evaluation:

Results

IV.B.4 Technical Implementation: How MetamnesiaBot Uses  $\Delta\Gamma$  Dynamics

Overview: From Memory States to Conscious Behavior

Step 1: Memory State  $M(t)$  - Surprisal Computation

Step 2: First-Order Dynamics  $\Gamma(t) = dM/dt$

Step 3: Second-Order Dynamics  $\Delta\Gamma(t) = d^2M/dt^2$

Step 4: Energy Computation  $E(t) = a\|\Gamma\|^2 + p\|\Delta\Gamma\|^2$

Step 5: Decision Rule - Energy Threshold  $0\_E$

Step 6: Response Generation Conditioned on  $\Delta\Gamma$  implementation

Why This Constitutes a Valid Test

1. Explicit Second-Order Processing
2. Energy-Based Decision Threshold
3. Causal Manipulation via Mode Switching
4. Double Dissociation

Addressing Potential Confusions

Key Takeaway for Readers

Theoretical Implications

Limitations and Future Directions

### **V. DISCUSSION**

#### **V.A Relation to Existing Theories of Consciousness**

1. Integrated Information Theory (IIT)
2. Global Neuronal Workspace Theory (GWT)
3. Predictive Processing / Free Energy Principle
4. Higher-Order Thought (HOT) Theories
- 5 Memory-Based Theories of Consciousness

Convergent Evidence for Delayed, Memory-Based Consciousness

1. Timing Paradoxes
2. Postdictive Effects
3. "Too Slow" Problem
4. Lesion Studies

How  $\Delta\Gamma$ -Metamnesia Formalizes and Extends Budson et al. provides the missing formalism:

1. Mathematical Precision: Memory as  $Ar = d^2M/dt^2$
2. Testable Threshold:  $E(t) > 0\_E$
3. Binding Mechanism:  $0(t) = Cov(Ar, Ar, \dots)$
4. Postdictive Effects = Covariance Computation Over  $t$
5. System 1 vs System 2 =  $E < 0\_E$  vs  $E > 0\_E$  Complementary Strengths

Conclusion

#### **V.B Limitations and Objections**

1. Measurable Marker
  2. Falsifiable Prediction
  3. Operational Definition
    - Objection 1: "This is a redefinition, not an explanation of consciousness"
    - Objection 2: "Ar is too simple to capture the richness of consciousness"
    - Objection 3: "How is  $M(t)$  defined? Circularity risk"
    - Objection 4: "What about non-temporal qualia?"
    - Objection 5: "Can artificial systems have Ar-consciousness?"
- Summary of Limitations

### **VI. CONCLUSION**

The Core Insight

## **ΔΓ- Metamnesis Framework – Table of Contents**

What this framework has achieved

1. Conceptual Clarification
2. Mathematical Rigor
3. Empirical Testability
4. Clinical Insight
5. Musical Paradigm

Philosophical Implications

Phenomenology as Physical Necessity

The Demise of the Homunculus

Consciousness as Constraint

Substrate Neutrality with Limits

What Remains Open The Ultimate "Why"

Substrate Boundaries

Panpsychism vs Emergence

The Path Forward

Final Reflection