Summary of the idea

Core claim

Creativity Synthesis is modeled as a mathematically grounded process that transforms pre-processed sensory information into emergent mental artifacts called Representables. The model centers on a complex residual function, L_m, which captures the system's internal degrees of freedom and the algebraic structure that constrains what can be generated. Creativity is therefore not magical free-will artifacts but computationally bounded by the system's information content and algebraic biases.

Formal model of the L_m residual function

Definition

The model uses a complex residual function denoted $L_m(n, \phi, \varphi)$. A clear, compact mathematical statement of the function is:

$$\mathrm{L_m(n, \phi, \varphi)} \;=\; \exp(1/\mathrm{n!} \circ \mathrm{P_m} \circ \exp(\phi + \varphi \mathrm{i}))$$

Components explained

- P_m is the permutohedron operator of order m representing permutations of a length-m combinatorial structure.

- n is taken modulo m so that $(n \equiv N\ (mod\ m))$.

- m is a composite multi-factorial expression of the form $(((2r(!\hat{}p) + s)(!\hat{}q))\hat{}t)$ where (r, s, t) are real parameters and (p, q) are coprime integers.

- $\phi$and φ are real parameters controlling the complex exponential phase and magnitude.

- Output is a complex numeric string that can be parsed or re-ordered by specifying an evaluation order of the permutohedron.

Operational note

Different evaluation orders of P_m (left-to-right, right-to-left, center-out) produce distinct residual sequences that the model treats as distinct candidate Representables.

Conceptual framework mapping to cognition

Pipeline overview

1. Sensory Analysis

- Raw inputs are encoded into discrete information quanta consistent with Bekenstein-scale bit limits.

- This stage performs compression, denoising, and feature extraction.

2. Storage and Internal Biases

- Encoded information is stored in a system with algebraic biases. These biases are modeled by internal functions such as $\ln(prime_n)$ and $\ln(fibonacci_n)$ which shape retrieval and recombination.

3. Creativity Synthesis

- The L_m residual function operates on stored information and internal degrees of freedom to produce Representables. Representables are elementary thoughts, feelings, visualizations, or other mental artifacts.

4. Selection and Externalization

- Candidate Representables are evaluated against task constraints and sensory fidelity before being externalized or acted upon.

Key interpretation

Creativity is an emergent recombination constrained by algebraic invariants and the system's finite information capacity. The L_m function formalizes how combinatorial structure and complex phase interact to produce novel outputs.

Computational interpretation and applications

Turing-tape analogue

- The model treats Creativity Synthesis as a read/write process analogous to a Turing machine. The L_m residuals are the tape symbols produced by algebraic rewrite rules. Creativity is therefore computable within the limits imposed by the system's stored information and algebraic constraints.

Assembler system

- A conceptual "Bare-Bionic Assembler" is proposed to implement the model. It encodes algebraic invariants from Hurwitz and Ore algebraic structures and manipulates skew-polynomial fields to generate residual sequences.

Potential applications

- Quantum computing: mapping L_m outputs to quantum state amplitudes for generative quantum algorithms.

- Cognitive modeling: simulating constrained creativity in artificial agents.

- Complex systems: analyzing emergent patterns in semi-closed quantum or hybrid systems.

Ethics aligned study design

Study objective

Evaluate whether the L_m functional model reliably predicts the structure and diversity of Representables generated by human or artificial agents under controlled sensory input and storage constraints.

Study design summary

- Participants: human volunteers and simulated agents.

- Inputs: standardized sensory datasets with controlled information content and noise levels.

- Intervention: implement L_m-based synthesis module in simulation and compare outputs to human Representables elicited under matched conditions.

- Outcome measures: novelty, coherence, reproducibility, and fidelity to input constraints measured with validated psychometric and information-theoretic metrics.

Ethics and data governance

- Informed consent: obtain explicit consent from human participants with clear explanation of tasks, risks, and data use.

- Privacy: anonymize all human data and store only derived features needed for analysis.

- Minimization: collect the minimum data necessary to test hypotheses.

- Transparency: preregister hypotheses, analysis plans, and the L_m implementation details to enable reproducibility.

- Risk mitigation: screen tasks to avoid psychological distress and provide debriefing.

- Review: obtain approval from an institutional review board or equivalent ethics committee before data collection.

Reproducibility practices

- Publish code, parameter settings, and synthetic datasets used for agent experiments.

- Provide a clear specification of the permutohedron evaluation orders and the mapping from L_m outputs to Representable labels.

Limitations and next steps

Known limitations

- The L_m formulation is highly parameterized and may be sensitive to choices of (m, n, ϕ, φ).

- Mapping between abstract residual strings and phenomenological Representables requires operational definitions that may vary across domains.

- Quantum interpretations are speculative until concrete implementations demonstrate advantage.

Next steps

- Implement a minimal, open-source prototype of the L_m assembler for simulated agents.

- Run pilot human experiments with low-risk tasks to validate mapping procedures.

- Perform sensitivity analyses on parameter choices and permutohedron evaluation orders.

- Iterate the model to reduce parameter dependence and improve interpretability.

Concise conclusion

The L_m-functional model reframes creativity as a constrained, computable synthesis of stored information shaped by algebraic invariants. Framed as an ethics-approved empirical program, the model can be tested with transparent, reproducible methods that respect participant rights and data minimization while exploring applications in cognitive modeling and quantum-informed generative systems.