The Perception Game and Mathematics

The Perception Game is a human-playable model of high-dimensional mathematics, showing how meaning, like intelligence, emerges not from individual inputs but from the combinatorial structure of the whole system.

The Perception Game is a **human-scale model of high-dimensional mathematics**, i.e the same mathematics underlying Mythos, neural networks, and quantum systems.



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1. Combinatorics and State-Space Explosion

Each new card added to the table increases the number of possible interpretations combinatorially. If the first three cards create a small state space (e.g., parrots → photography), by the seventh card the number of possible narrative trajectories has grown exponentially. This mirrors how adding parameters or data to a model expands its hypothesis space.

Mathematically: If each card can connect to *k* possible meanings, then *n* cards create roughly k^n possible interpretive structures. This is why new meanings "appear" suddenly - the space becomes large enough to support them.

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2. Non-Linear Dynamics and Phase Transitions

The jump from "parrots" to "holidays" to "gravity" to "wealth" is not linear. It is a phase transition - the same phenomenon described in Mythos and in statistical physics.

A small perturbation (one new card) can reorganise the entire interpretive landscape. This is mathematically identical to:

- bifurcation points in dynamical systems

- sudden shifts in neural population coding
- capability jumps in large AI models

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3. Topology: Meaning as a Rewiring of the Space

Each card changes the shape of the meaning-space. Topology tells us that when you add new nodes or edges to a graph, the global structure can reorganise abruptly, and you see new clusters form, old ones dissolve.

The Perception Game is a topological game: players are constantly re-mapping the meaning-space as new information arrives.

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4. Bayesian Updating and Hidden Rationales

Players infer the rationale behind each card - effectively performing Bayesian inference. But because the rationale is hidden, the posterior distribution can shift dramatically with each new observation.

This is exactly how large models behave: small updates → large shifts in internal representation.

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5. Mythos: The Mathematics of Emergence

Mythos states that intelligence emerges when systems cross critical thresholds of scale, connectivity, and dimensionality. The Perception Game lets humans *feel* this mathematically:

- early moves = linear regime
- mid-game = combinatorial expansion
- late game = emergent, unpredictable, multi-dimensional meaning

It is a hands-on demonstration of emergent behaviour, grounded in the same mathematics that governs neural networks, markets, and quantum systems.

The Perception Model
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