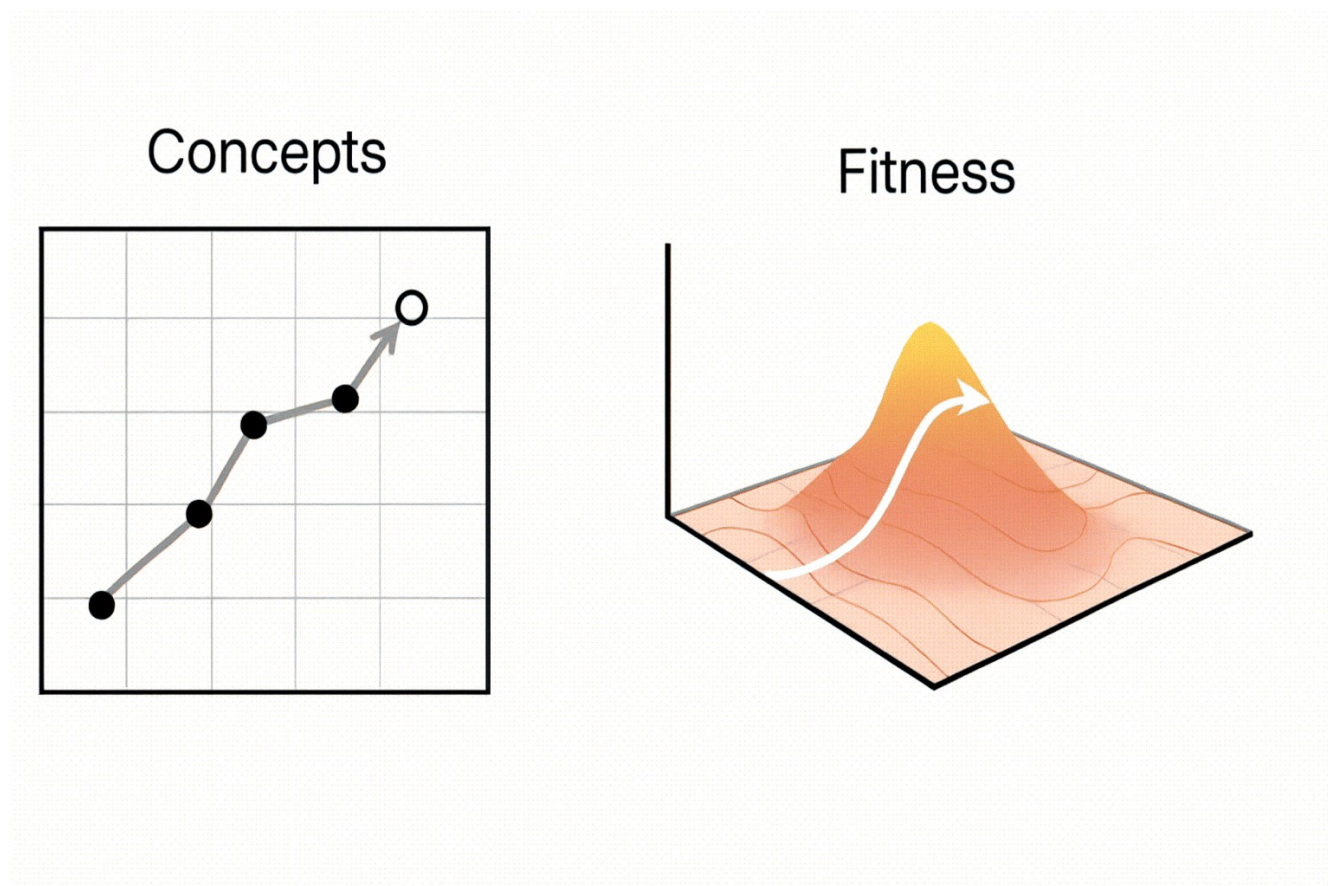


Exploring the Failure Modes Resulting from Missing Functionality in the Functional Model of Intelligence

The functional model of intelligence (minimal set of functions required to have general problem-solving ability or the ability to potentially adapt to solve any problem in general), reduces to the set of (external) functions required to navigate a conceptual space while using a set of (internal) functions to navigate a corresponding fitness space in a way that maintains stability of dynamics in that fitness space.



The document aims to provide a map showing the problems that are not reliably solvable without a functional model of intelligence at the individual level, and/or a functional model of intelligence at the group level.

Below are two structured tables that summarize the **failure scenarios** arising from the **absence of each function**—first for the **external functions**, then for the **internal functions**—across four domains:

1. **AI Systems**
 2. **Individual Humans**
 3. **Human Groups Without a Functional Model**
 4. **Human Groups With a Functional Model (DCI)** — shown when applicable
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Table 1: Failures Due to Missing External Functions of Intelligence

(Functions necessary to traverse conceptual space)

Function	AI Systems	Individual Humans	Human Groups (No Model)	Human Groups (With DCI)
Storage	Stateless sessions; loss of prior distinctions; hallucination recurrence	Forgetfulness; inconsistent reasoning; no continuity of self	No institutional memory; policy reversals every cycle	Semantic persistence, intergenerational learning
Recall	Inability to retrieve relevant prior info; no generalization from history	Stuck in the moment; poor planning; no narrative sense of life	Incoherent discourse; constant reinvention of explanations	Retrieval of past collective insight for faster adaptation
System 1	No fast heuristics; brittle when rapid judgment is needed	Paralysis in social/emotional domains; poor pattern recognition	Over-dependence on deliberation; slow cultural response	Integrated rapid-response layers with intuitive alignment checking
System 2	No stepwise correction or verification; easily fooled by patterns	Impulsiveness; belief rigidity; cannot follow logic chains	Ideological groupthink; echo chambers	Coordinated deliberative structures for complex reasoning



Table 2: Failures Due to Missing Internal Functions of Intelligence

(Functions necessary for recursive self-correction and coherence)

Function	AI Systems	Individual Humans	Human Groups (No Model)	Human Groups (With DCI)
1. Problem Modeling	Fails to detect output failure or incoherence (hallucination)	Can't tell when beliefs fail or goals contradict	Denial of failure until collapse (e.g., climate inaction)	Emergent distributed error detection
2. Modularization	Cannot reuse components or isolate concepts; monolithic behavior	Overloaded by complexity; no inner structure; poor mental hygiene	Bureaucratic rigidity; no cross-departmental agility	Functional decomposition of roles and institutions
3. Fitness-Space Interaction	Optimizes tokens not goals; reward hacking; proxy chasing	Chases superficial status/pleasure instead of deeper	Prioritizes GDP, likes, or ideology over human flourishing	Collective fitness modeling and recalibration

Function	AI Systems	Individual Humans	Human Groups (No Model)	Human Groups (With DCI)
		well-being		
4. Stability Maintenance	Loses semantic coherence between sessions; cannot preserve distinctions	Knowledge degradation; loss of conceptual clarity	Culture forgets hard-won lessons; populism, revisionism, epistemic decay	Shared memory and epistemic anchoring
5. Functional Reconfiguration	Cannot restructure reasoning or learn from failure modes	Inflexible, dogmatic, traumatized logic pathways	Institutional ossification; no reform despite obvious failure	Reflexive restructuring across all epistemic layers
6. Cross-Domain Mapping	Fails to generalize; brittle across contexts; trapped in narrow modes	No analogical learning; fails to see connections	Inability to coordinate across fields; siloed expertise; poor crisis response	Semantic compression across disciplines, cooperative insight transfer



Observations

- **AI systems** can appear competent while structurally failing at core epistemic functions (especially internally).
- **Individual humans** have latent capacities for all functions, but these can be blocked by trauma, environment, or lack of training.
- **Human groups without a model** fail predictably due to emergent dysfunction and unmodeled reasoning biases.
- **DCI (Human Groups With Model)** is the only domain where failure modes are **recognized, modeled, and recursively mitigated**—not because of ideology, but due to **epistemic architecture**.

The proposed user interface for the simulation that will walk through all of these failure modes is below:

Explore Problems and Missing Functions

Enter a problem to explore how it relates to a lack of a functional model of intelligence.

Problem

What problem would you like to explore?

or

Missing External Functions

- ☐ Storage
- ☐ Recall
- ☐ System 1 Reasoning
- ☐ System 2 Reasoning

Missing Internal Functions

- ☐ Problem Modeling
- ☐ Fitness-Space Interaction
- ☐ Modularization
- ☐ Stability Maintenance
- ☐ Fitness-Space interaction
- ☐ Cross-Domain Mapping

Explore