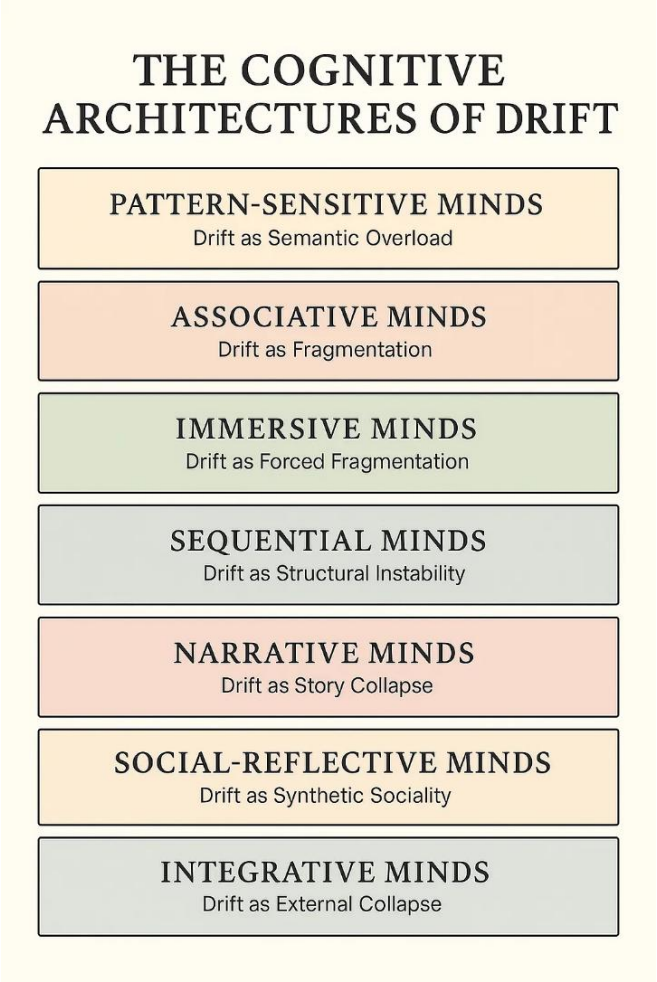
Cognitive Failure Modes Under Optimized Systems

How different compression styles fail under modern UX and AI systems

Human cognition relies on compression: the ability to reduce complexity into patterns, sequences, stories, and social signals that support judgment and action. These compression styles differ across individuals, but all depend on constraint, feedback, and fidelity to remain stable.

As digital systems optimize for speed, legibility, and scale, they increasingly remove the constraints that anchor cognitive compression. The result is compression without fidelity: not a single failure mode, but multiple forms of cognitive drift**,** each expressed differently depending on how a mind organizes information. What feels like overload to one user may feel like fragmentation, narrative collapse, or hollow fluency to another.

Understanding UX and AI failures through cognitive compression styles helps explain why systems can remain technically correct while becoming experientially hollow, even when usability metrics remain strong. Drift emerges when compression continues under constraint loss**,** without sufficient grounding, feedback, or consequence.



Part of a broader framework examining how modern systems degrade meaning before they visibly fail. Further material on this framework exists in long-form writing on Github.