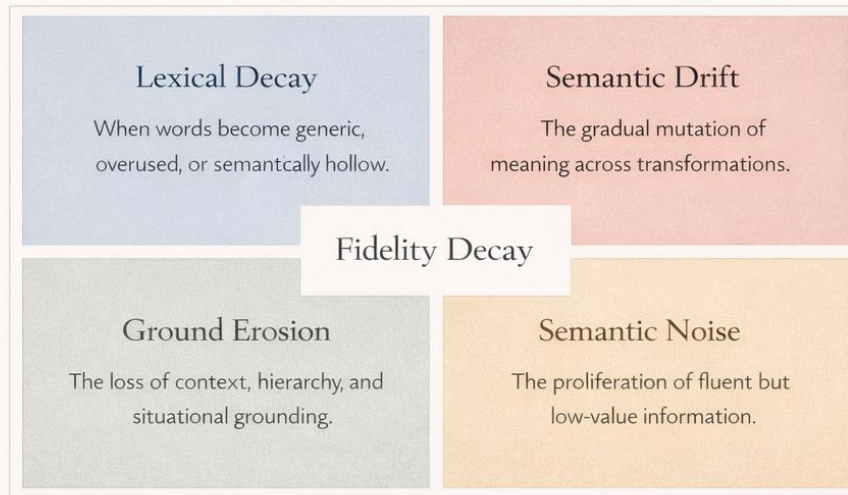


Why Do AI Systems Lose Meaning Over Time? (Fidelity Decay Explained)

The Four Dimensions of Fidelity Decay

A taxonomy of meaning loss in generative systems.



From the Semantic Fidelity Lab

Meaning rarely collapses all at once. It erodes gradually as language is compressed, transformed, and optimized for scale.

The *Four Dimensions of Fidelity Decay* map how this happens. Words become diluted, context disappears, meaning drifts across iterations, and fluent noise begins to outcompete substance. These patterns are increasingly visible in generative systems and modern information environments, where outputs remain polished even as their connection to reality weakens.

Understanding fidelity decay is essential to preserving clarity, trust, and semantic integrity in the age of AI.

Keywords: *semantic drift in AI, meaning loss in LLMs, fidelity decay AI, context loss language models, lexical degradation NLP, semantic noise generation, iterative LLM degradation, grounding loss AI, hallucination vs drift, information loss in transformers*

Reference: [Semantic Fidelity Lab Substack](#)