

Bartlett's reconstructive memory theory

(1932) - Remembering A study in experimental and social psychology

- Human memory is actively reconstructive than passively reproductive.

- Distant memories do not surface through random activation but through genuine structural relationships formed during digestion of content.

Experiment :- When English (British) participants read "The war of ghosts" an American folk tale with unfamiliar narrative structures, supernatural elements, cultural concepts foreign to British readers, and then asked to recall after various delays from hours, days to years, participants systematically transformed the content.

Transformation :-

1. Rationalization: Supernatural elements became naturalistic (ghosts → fog/mist)
2. Omission: Unfamiliar details disappeared (canoe → boat, then disappeared)
3. Assimilation: Foreign concepts mapped to familiar ones (hunting seals → fishing)
4. Coherence building: Participants added causal links absent in original
5. Affecting coloring: Emotional tones shifted to match participants attitudes

Critical insight :- These were not errors, they were semantic transformations guided by existing schemas.

Memory transformation involved transformation through prior understanding, not replay of stored data.

Direct Impact on ~~Google~~ Anti-Noise Position

This directly validates ~~Google~~ critique of entropy-guided noise injection and random memory triggers:

~~Google~~ Argument:

Human memory and intuition do not work by accident or randomness, they operate through structured pursuit in direction based on digested and internalised facts.

Kanerva Machine Implementation

In Kanerva memory, if model learns "lynxity" and later "lane" and if they share semantic features in context, then they are stored in overlapping neurons.

The memory of lynxity becomes physically entangled with lane. Retrieval reconstructs from superposition, this is nothing but "digested content"

This superposition creates condition for schema-guided retrieval schema theory: The missing layer in current LLMs.

Bartlett defined schemas as "active developing patterns" that:-

1. organise past experiences into meaningful structures
2. guide attention during new encoding (what gets noticed/stored)
3. Provide frameworks for reconstruction during retrieval
4. Enable inference by filling in gaps with schema-consistent information.

Crucially, schemas are not static, they are dynamic, continuously updated through experience and they operate largely outside conscious awareness.