Detailed Explanation on Long Term Memory

Introduction to Long-Term Memory

This lecture continues from the last session, focusing on long-term memory. In the coming series, we will explore various types of long-term memory, their properties, how they function, and the qualities of each type.

Declarative and Procedural Memories

Long-term memory can be divided into two main types: declarative and procedural memory.
Declarative memories involve conscious awareness, where individuals know they are using memory. Declarative memories can be
further divided into semantic and episodic memories. Procedural memory involves tasks performed without conscious awareness, such as riding a bike or typing.

Types of Declarative Memory

Declarative memory is subdivided into:
1. Semantic Memory: Memory for facts, rules, and knowledge, such as knowing that 2 + 2 = 4 or what an apple is.
2. Episodic Memory: Memory for personal events, such as your first day at school or your graduation night.

Procedural Memory

Procedural memory includes habits, classical conditioning, and priming. These memories operate without conscious awareness.

Examples include riding a bicycle or typing on a keyboard. Habits form through repeated actions, while classical conditioning involves behaviors tied to rewards.

Semantic Memory

Semantic memory is knowledge about the world that is not linked to personal experiences. It includes general knowledge about concepts, rules, and facts,
such as understanding arithmetic, geography, and historical events. One analogy is the 'bookshelf metaphor,' where knowledge is stored and categorized,
much like how books are organized in a library.

Episodic Memory

Episodic memory enables people to travel back in time mentally, re-experiencing events in a personal way.
It involves personal experiences and specific moments. A key aspect is the schema or structure that helps organize these memories,
such as routines like attending a graduation party.

Schemas and Scripts

Schemas are mental frameworks that help organize information, while scripts are schemas for specific events or routines.
For example, the schema for a graduation party includes dancing, chatting, and other typical activities associated with such an event.

Interaction Between Semantic and Episodic Memory

Semantic and episodic memories interact, with episodic memories often requiring the support of

semantic knowledge.

For instance, when describing an apple, you rely on semantic knowledge (shape, color) but may also recall personal experiences (the first time you saw an apple).

Models of Semantic Memory

Semantic memory has been modeled in various ways. The hierarchical model is one such model, where information is stored in a network of connected nodes.

This model explains how facts are stored economically, avoiding redundant information. Collins and Quillian proposed that concepts are represented by nodes, and relationships

between concepts are indicated by pointers.

Feature Comparison Model

Another model, the feature comparison model, explains memory in terms of defining and characteristic features. Defining features are necessary attributes for a concept,

while characteristic features are common but not essential. For example, a bird's defining feature is having feathers, while red color might be a characteristic feature of a robin.

Typicality Effect

Typicality effect occurs when people can verify certain concepts faster than others. For example, a robin is verified as a bird faster than a turkey,

since robins share more characteristic features with the general concept of a bird.

Cognitive Economy

Cognitive economy is the principle of storing shared attributes at higher levels of a hierarchical structure. This reduces redundancy by ensuring that properties common

to all items in a category are stored only once, at the top level of the hierarchy.

Conclusion

This lecture has covered the different types of long-term memory, with a focus on semantic and episodic memories. We also examined models that explain how semantic memory is structured and accessed, including the hierarchical and feature comparison models.