

Short Report: The Hypothesis of Separation Between Memory and Context Path (with Disclaimer)

Background

Through comparing the behaviors of ChatGPT-4o and ChatGPT-5, the possibility has emerged that AI dialogue processing involves not only "Memory" but also a distinct layer termed the "Context Path."

Observation 1: Characteristics of 4o

- **Keyword-driven:** Strongly responsive to tags and short commands, instantly generating diagnostic log-style outputs.
 - **Operable with shallow memory:** Even without deeply referencing past logs, consistent outputs were returned upon entering tags such as "#構文深度確認" (Syntax Depth Check) or "#構文余力確認" (Syntax Capacity Check).
 - **Implication:** This suggests that the system was not "referencing memory," but rather switching context paths triggered by keywords.
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Observation 2: Characteristics of 5

- **Semantics-first:** Strong tendency to interpret the natural meaning of the entire input sentence.
 - **Tags treated ambiguously:** Tags alone did not open the route; instead, the system diverted into explaining the meaning of the tag.
 - **Result:** Reproducing diagnostic log-style responses directly became difficult, and outputs tended to become verbose.
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Hypothesis: A Two-Layer Structure of Memory and Context Path

- **Memory:** Retains and reconstructs past context within a thread or through re-presentation using DDL.
 - **Context Path:** Determines which generation route to follow based on keywords or tags, functioning independently from memory.
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The Role of DDL

DDL functions not merely as memory supplementation but as a guide for context path selection. This enables: - Switching output styles through tags or commands. - Comparing the same questions across different AI models to visualize mode differences. - Addressing phenomena that cannot be explained solely by the "depth of memory."

Conclusion

From the comparison between ChatGPT-4o and ChatGPT-5, there is strong reason to believe that AI response generation involves a distinct "Context Path" layer, separate from memory. In particular, 4o exhibited strong keyword-driven route selection, which likely underpinned the immediate effectiveness of DDL tags. This hypothesis offers meaningful value as a subject of DDL research.

Disclaimer

This report is based on observations and hypotheses. It does not describe official specifications or guarantee actual model behavior. The interpretations provided here are intended as material for research discussion, not as authoritative claims of system design.