Team seminar

Prompt 전략

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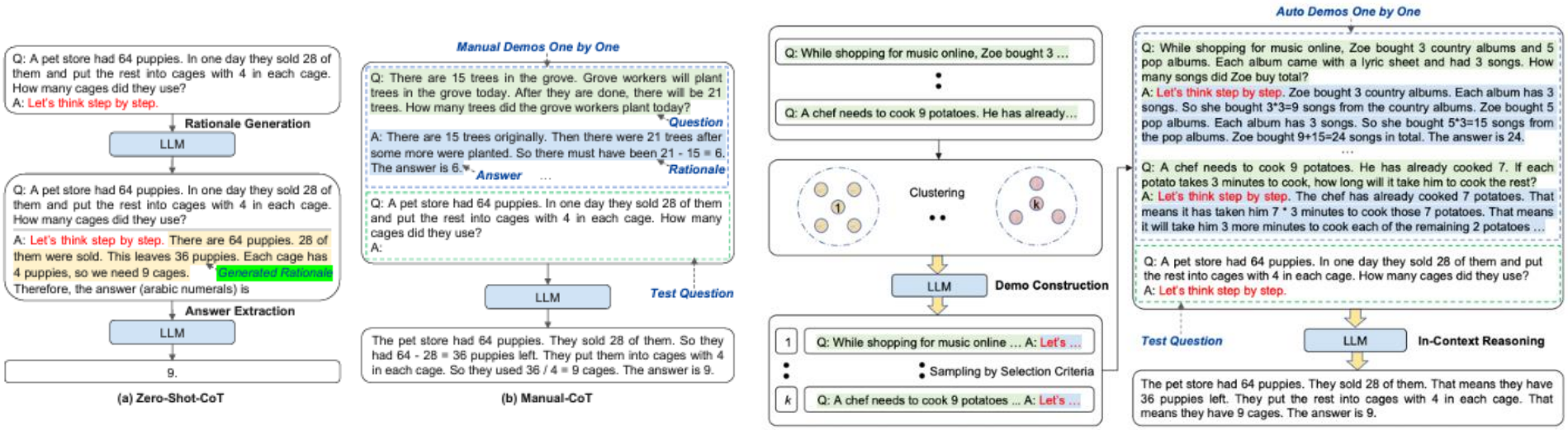
LLM - CoT

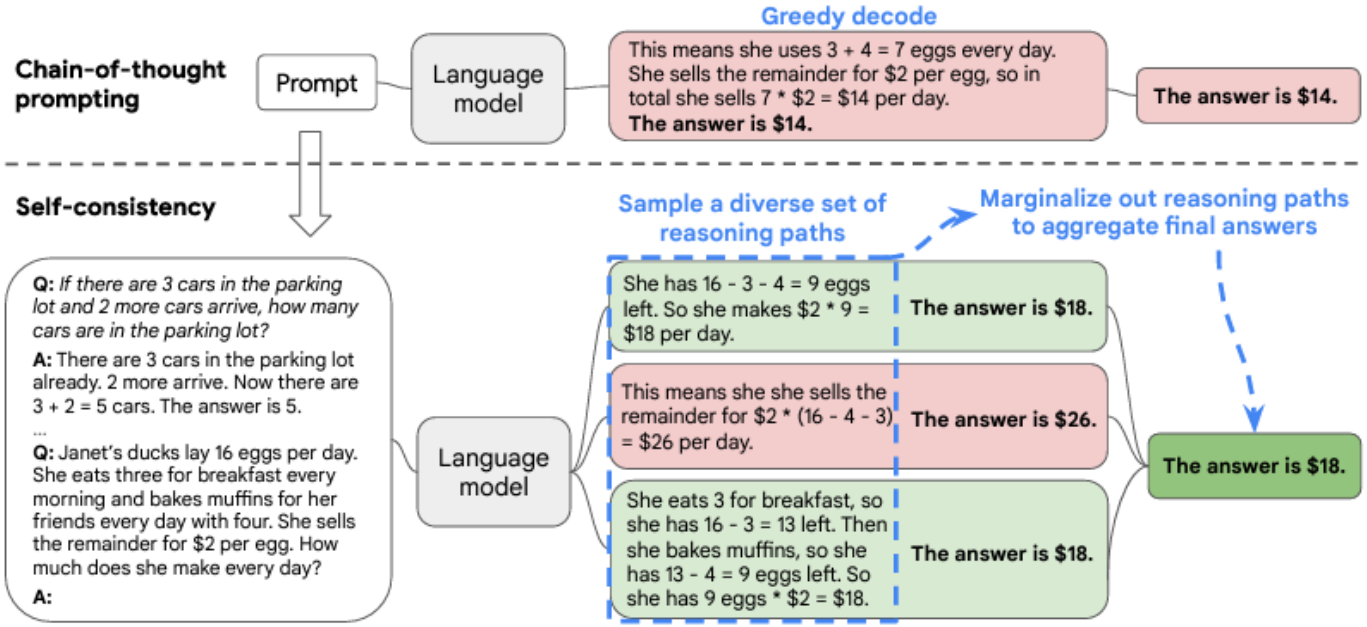
- Automatic Chain-of-Thought
  - ✓ A simple prompt like “Let’s think step by step” OR a few manual demonstrations.
  - ✓ Automatic CoT samples questions with diversity and generates reasoning chains to construct demonstrations.



Zhang, Z., Zhang, A., Li, M., & Smola, A. (2022). Automatic chain of thought prompting in large language models. *arXiv preprint arXiv:2210.03493*. Cited by 354

LLM – Self consistency

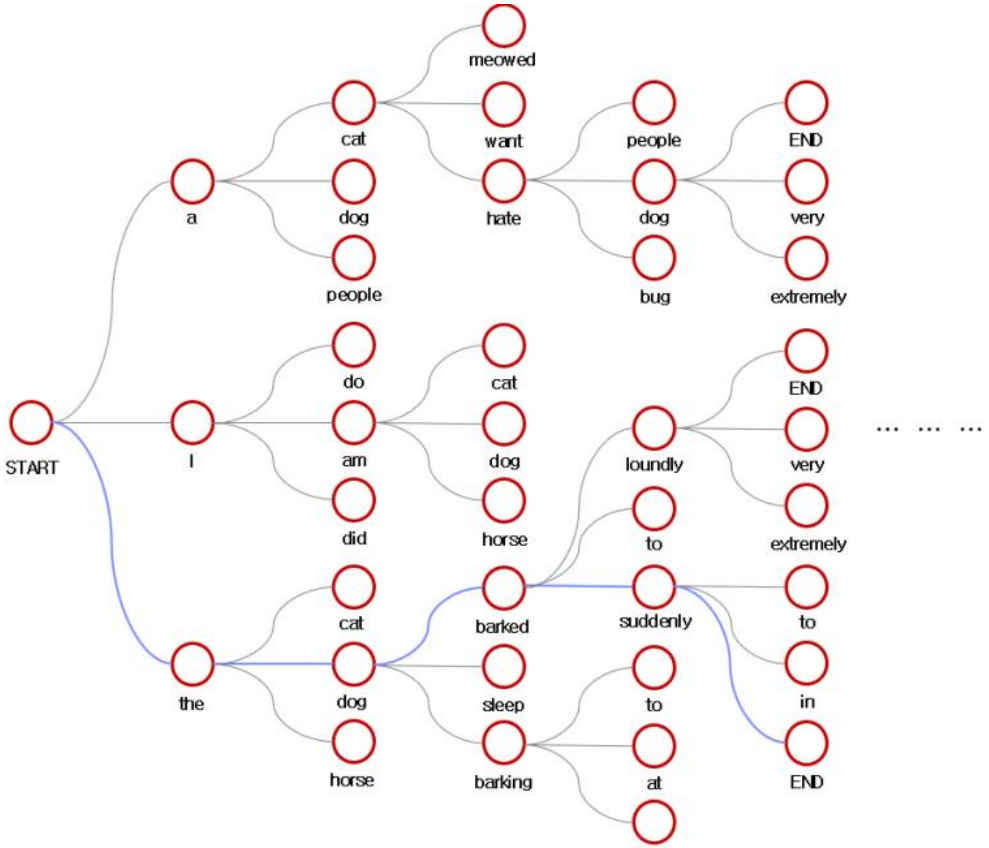
- Self consistency
  - ✓ Replace the naive greedy decoding used in chain-of-thought prompting
  - ✓ A complex reasoning problem typically admits multiple different ways of thinking leading to its unique correct answer.



Wang, X., Wei, J., Schuurmans, D., Le, Q., Chi, E., Narang, S., ... & Zhou, D. (2022). Self-consistency improves chain of thought reasoning in language models. *arXiv preprint arXiv:2203.11171*. Cited by 528

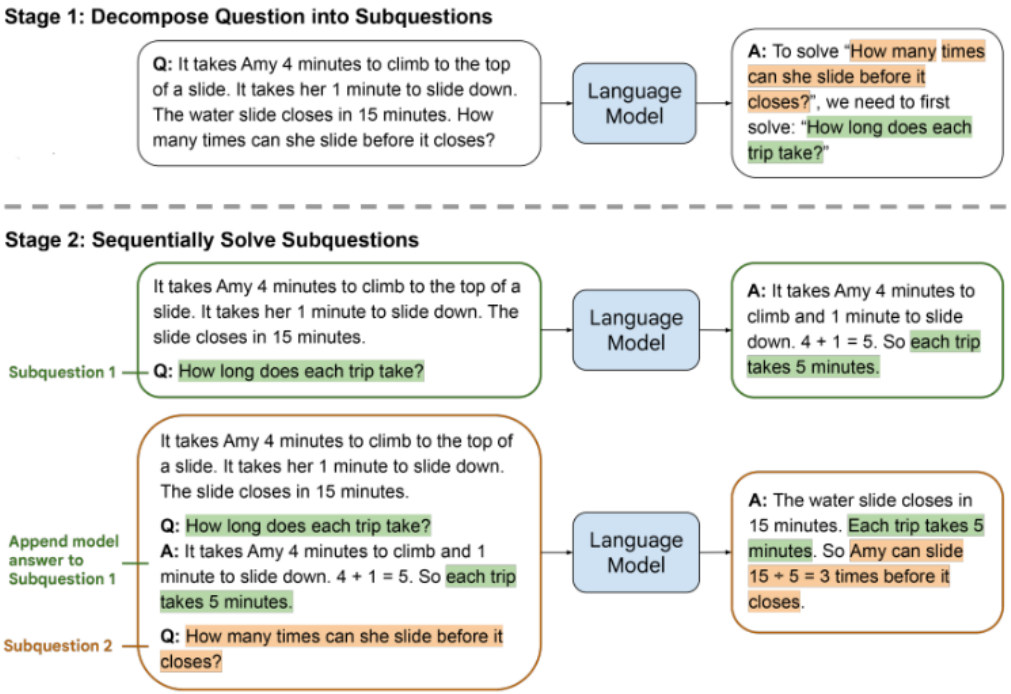
LLM – Self consistency

❖ Greedy decoding & Beam search in seq2seq models



LLM – Least-to-Most

- Least-to-Most
  - ✓ break down a complex problem into a series of simpler subproblems and then solve them in sequence.



Q: Elsa has 5 apples. Anna has 2 more apples than Elsa. How many apples do they have together?
A: Let's break down this problem: 1. How many apples does Anna have? 2. How many apples do they have together?

1. Anna has 2 more apples than Elsa. So Anna has 2 + 5 = 7 apples.
2. Elsa and Anna have 5 + 7 = 12 apples together.

The answer is: 12.

Table 9: The least-to-most prompt for solving GSM8K. The demonstration problem is solved in only two steps, but the prompt can handle problems that require multiple steps to be solved.

Q: Elsa has 5 apples. Anna has 2 more apples than Elsa. How many apples do they have together?
A: Anna has 2 more apples than Elsa. So Anna has 2 + 5 = 7 apples. So Elsa and Anna have 5 + 7 = 12 apples together.

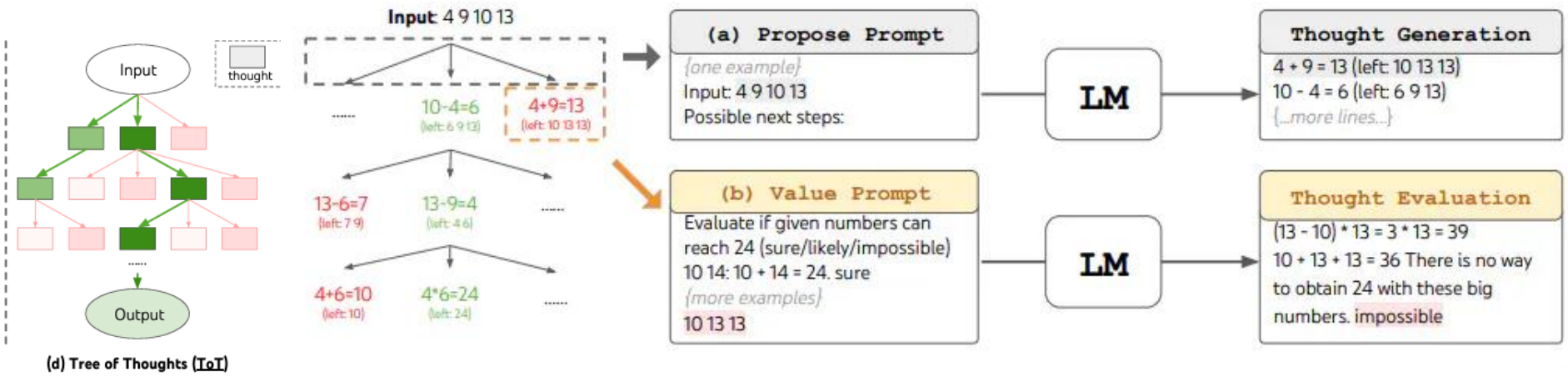
The answer is: 12.

Method	Non-football (DROP)	Football (DROP)	GSM8K
Zero-Shot	43.86	51.77	16.38
Standard prompting	58.78	62.73	17.06
Chain-of-Thought	74.77	59.56	60.87
Least-to-Most	**82.45**	**73.42**	**62.39**

Zhou, D., Schärli, N., Hou, L., Wei, J., Scales, N., Wang, X., ... & Chi, E. (2022). Least-to-most prompting enables complex reasoning in large language models. *arXiv preprint arXiv:2205.10625*. cited by 607

LLM - ToT

- Tree-of-thought
  - ✓ Perform deliberate decision making by considering multiple different reasoning paths and self-evaluating choices to decide the next course of action,
  - ✓ Looking ahead or backtracking when necessary to make global choices



Yao, S., Yu, D., Zhao, J., Shafran, I., Griffiths, T., Cao, Y., & Narasimhan, K. (2024). Tree of thoughts: Deliberate problem solving with large language models. *Advances in Neural Information Processing Systems*, *36*. Cited by 624