

Chain-of-Thought Prompting Elicits Reasoning in Large Language Models

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Что такое chain-of-thought prompting?

Standard Prompting

Model Input

Q: Roger has 5 tennis balls. He buys 2 more cans of tennis balls. Each can has 3 tennis balls. How many tennis balls does he have now?

A: The answer is 11.

Q: The cafeteria had 23 apples. If they used 20 to make lunch and bought 6 more, how many apples do they have?

Model Output

A: The answer is 27. ❌

Chain-of-Thought Prompting

Model Input

Q: Roger has 5 tennis balls. He buys 2 more cans of tennis balls. Each can has 3 tennis balls. How many tennis balls does he have now?

A: Roger started with 5 balls. 2 cans of 3 tennis balls each is 6 tennis balls. $5 + 6 = 11$. The answer is 11.

Q: The cafeteria had 23 apples. If they used 20 to make lunch and bought 6 more, how many apples do they have?

Model Output

A: The cafeteria had 23 apples originally. They used 20 to make lunch. So they had $23 - 20 = 3$. They bought 6 more apples, so they have $3 + 6 = 9$. The answer is 9. ✅

Figure 1: Chain-of-thought prompting enables large language models to tackle complex arithmetic, commonsense, and symbolic reasoning tasks. Chain-of-thought reasoning processes are highlighted.

Плюсы подхода

- Декомпозируем задачу на маленькие части
- Ответ более интерпретируем
- Можно также решать другие задачи типа commonsense reasoning и symbolic manipulation (и еще много какие)
- Не требует дорогостоящих вычислений и данных

На каких задачах тестируется подход?

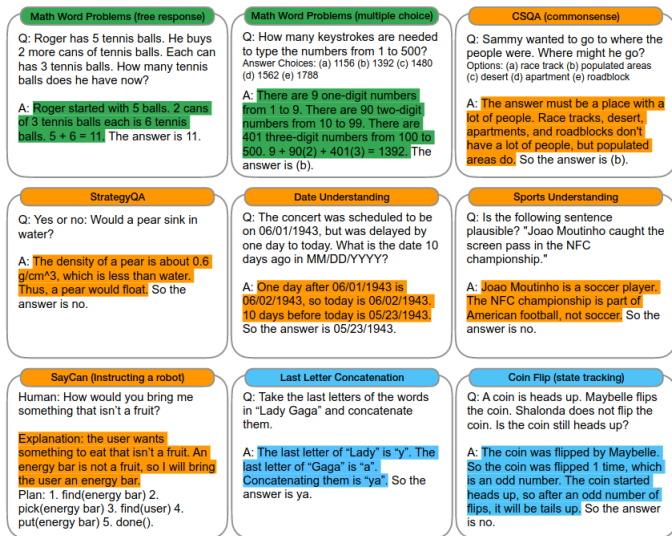
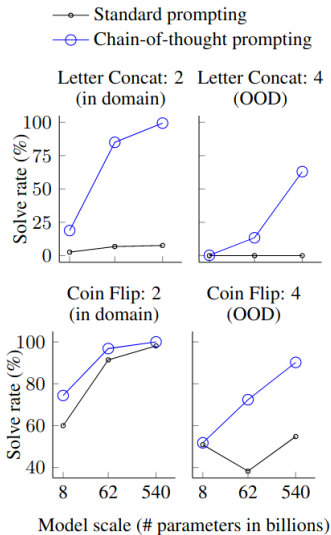
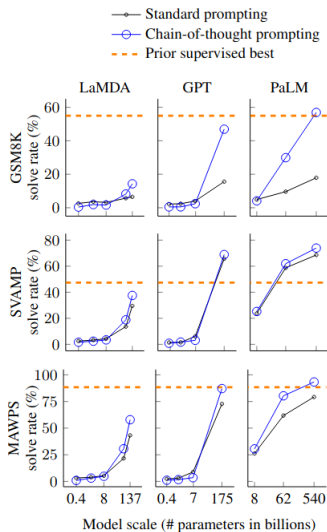
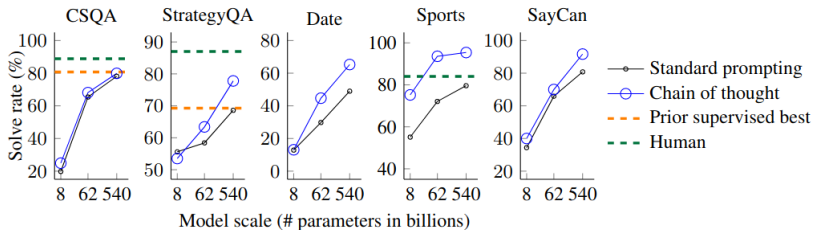


Figure 3: Examples of (input, chain of thought, output) triples for arithmetic, commonsense, and symbolic reasoning benchmarks. Chains of thought are highlighted. Full prompts in Appendix G.

Результаты (1)



Результаты (2)



Результаты (3)

- Finetuned GPT-3 175B
- Prior best
- PaLM 540B: standard prompting
- PaLM 540B: chain-of-thought prompting

