Few-Shot Learning Strategies and Reasoning Performance in Large Language Models on GSM8K

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: What is the impact of few-shot learning strategies on the reasoning capabilities of large language models when evaluated on the GSM8K dataset with varying numbers of demonstration examples. Reinforcement learning (RL) has become a key technique for enhancing the reasoning abilities of large language models (LLMs), with policy-gradient algorithms dominating the post-training stage because of their efficiency and effectiveness. However, most existing benchmarks. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 4.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Large Language Models Reasoning Abilities Under Non-Ideal Conditions After RL-Fine-Tuning. Research question: What is the impact of few-shot learning strategies on the reasoning capabilities of large language models when evaluated on the GSM8K dataset with varying numbers of demonstration examples?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 4.3/10.

3 Results

4 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 4.3/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

References

- http://arxiv.org/abs/2512.13930v1
- http://arxiv.org/abs/2309.02144v1
- http://arxiv.org/abs/2508.04848v1