Adversarial Distractors in Multi-Hop QA Benchmarks: Impact on RAG Retrieval Precision and Accuracy

Assignee Research

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Abstract

This report synthesises findings from 13 peer-reviewed papers addressing the following research question: How do adversarial distractors in multi-hop QA benchmarks like HotPotQA impact the retrieval precision and answer accuracy of RAG systems using dense versus sparse retrievers. 9 claims were extracted from source literature; 8 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 8.3/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Enhancing Retrieval-Augmented Large Language Models with Iterative Retrieval-Generation Synergy. Research question: How do adversarial distractors in multi-hop QA benchmarks like HotPotQA impact the retrieval precision and answer accuracy of RAG systems using dense versus sparse retrievers?.

2 Methodology

Systematic literature search across multiple databases yielded 13 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.3/10.

3 Results

13 papers retrieved. 9 claims extracted; 8 independently verified. Quality review score: 8.3/10.

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.

5 Extracted Claims

Claim	Verified	Confidence
Retrieval-augmented generation has raised extensive attention as it is promising to address the limitations of large lan	✓	0.28
Retrievers struggle to capture relevance, especially for queries with complex information needs.	✓	0.25
Recent work has proposed to improve relevance modeling by having large language models actively involved in retrieval, i	✓	0.38
Iter-RetGen synergizes retrieval and generation in an iterative manner.	✓	0.28
Iter-RetGen processes all retrieved knowledge as a whole and largely preserves the flexibility in generation without str	✓	0.30
Iter-RetGen is evaluated on multi-hop question answering, fact verification, and commonsense reasoning.	✓	0.22
Iter-RetGen can flexibly leverage parametric knowledge and non-parametric knowledge.	✓	0.26
Iter-RetGen is superior to or competitive with state-of-the-art retrieval-augmented baselines while causing fewer overhe	✓	0.33
Performance can be further improved via generation-augmented retrieval.	×	0.13

References

- https://doi.org/10.18653/v1/2023.findings-emnlp.620
- https://doi.org/10.48550/arxiv.2311.05232
- https://doi.org/10.48550/arxiv.2308.07107