

Tree-Based Iterative Retrieval Reduces Irrelevant Document Propagation in Domain-Specific QA

Assignee Research

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Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: What is the impact of irrelevant document propagation in iterative retrieval frameworks on answer accuracy across domain-specific datasets such as TriviaQA and ELI5 compared to single-step retrieval. 8 claims were extracted from source literature; 3 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 5.6/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Tree of Reviews: A Tree-based Dynamic Iterative Retrieval Framework for Multi-hop Question Answering. Research question: What is the impact of irrelevant document propagation in iterative retrieval frameworks on answer accuracy across domain-specific datasets such as TriviaQA and ELI5 compared to single-step retrieval methods?.

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 5.6/10.

3 Results

4 papers retrieved. 8 claims extracted; 3 independently verified. Quality review score: 5.6/10.

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
TOR achieves state-of-the-art performance in both retrieval and response generation on three different multi-hop questions	✓	0.36
Tree of Thought (ToT) enhances the problem-solving capabilities of Large Language Models (LLMs) by introducing a tree-like structure	×	0.10
The tree is an efficient structure for solving complex reasoning problems.	×	0.08
TOR is the first retrieval framework that uses a tree-like structure to dynamically initiate requests based on external information	×	0.13
TOR introduces a tree structure to handle each retrieved paragraph separately, alleviating the misleading effect of irrelevant information	✓	0.29
The diversity of reasoning path extension in TOR reduces the impact of a single reasoning error on the whole.	✓	0.21
TOR proposes two tree-based search optimization strategies: pruning and effective expansion.	×	0.05
Pruning and effective expansion strategies in TOR demonstrate significant improvements in reducing time overhead and increasing accuracy	×	0.03

References

- <http://arxiv.org/abs/2504.05181v2>
- <http://arxiv.org/abs/2404.14464v1>
- <http://arxiv.org/abs/2603.02888v1>