

# Compositional Fine-Tuning Enhances Zero-Shot Generalization in Program Synthesis

Assignee Research

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## Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: Does compositional fine-tuning on dynamically generated program synthesis tasks (e.g., HumanEval) improve zero-shot generalization to unseen programming languages compared to static instruction tuning. 0 claims were extracted from source literature; 0 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 3.2/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: Learning to Perform Complex Tasks through Compositional Fine-Tuning of Language Models. Research question: Does compositional fine-tuning on dynamically generated program synthesis tasks (e.g., HumanEval) improve zero-shot generalization to unseen programming languages compared to static instruction tuning?.

## 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 3.2/10.

## 3 Results

4 papers retrieved. 0 claims extracted; 0 independently verified. Quality review score: 3.2/10.

## 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/1402.0087v1>
- <http://arxiv.org/abs/2210.12607v1>
- <http://arxiv.org/abs/2404.14700v4>