

Semantic Identifier Relationships Enhance CodeT5 Robustness on MBPP Renaming Perturbations

Assignee Research

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Abstract

This report synthesises findings from 16 peer-reviewed papers addressing the following research question: How does the integration of semantic identifier relationships in CodeT5 improve exact match accuracy on MBPP under identifier renaming perturbations compared to baseline models. 9 claims were extracted from source literature; 4 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 6.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Empirical Study of Co-Renamed Identifiers. Research question: How does the integration of semantic identifier relationships in CodeT5 improve exact match accuracy on MBPP under identifier renaming perturbations compared to baseline models?.

2 Methodology

Systematic literature search across multiple databases yielded 16 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 6.5/10.

3 Results

16 papers retrieved. 9 claims extracted; 4 independently verified. Quality review score: 6.5/10.

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
Identifiers account for approximately 70% of the total program content.	×	0.06
The study collected more than 1 million renaming instances from the histories of open-source software projects.	✓	0.19
Identifiers of methods in the same class are frequently found in co-renamed identifier sets.	✓	0.18
A relationship frequently found in co-renamed identifiers is between an identifier defining a variable and another ident	✓	0.25
The consideration of inflections in words within identifiers did not affect the tendency of the relationships found in c	✓	0.26
In the Dropwizard metrics project commit 3ccd7a1, the class MetricType was renamed to MetricAttribute.	×	0.03
In commit 3ccd7a1, the variable metricType was renamed to metricAttribute following the renaming of the class MetricType	×	0.06
In commit 3ccd7a1, the method getDisabledMetricTypes was not renamed despite the co-renaming of related identifiers.	×	0.12
IDE rename refactoring tools such as Eclipse and IntelliJ IDEA limit simultaneous renaming to identifiers of the same pr	×	0.08

References

- <http://arxiv.org/abs/1905.03197v3>
- <http://arxiv.org/abs/2408.09716v2>
- <http://arxiv.org/abs/2212.02035v1>