

# JaCoText and CodeT5 Cross-Domain Generalization on MBPP Execution Accuracy

Assignee Research

June 7, 2026

## Abstract

This report synthesises findings from 11 peer-reviewed papers addressing the following research question: To what extent does JaCoText’s cross-domain generalization ability differ from CodeT5 when evaluated on the MBPP benchmark, measured by execution accuracy across seen and unseen programming languages. 16 claims were extracted from source literature; 4 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 5.0/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: JaCoText: A Pretrained Model for Java Code-Text Generation. Research question: To what extent does JaCoText’s cross-domain generalization ability differ from CodeT5 when evaluated on the MBPP benchmark, measured by execution accuracy across seen and unseen programming languages?.

## 2 Methodology

Systematic literature search across multiple databases yielded 11 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 5.0/10.

## 3 Results

11 papers retrieved. 16 claims extracted; 4 independently verified. Quality review score: 5.0/10.

## 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
JaCoText is a model based on Transformers neural network designed to generate Java source code from natural language text	✓	0.35
JaCoText initializes its model from powerful pre-trained models.	✓	0.20
JaCoText explores additional pretraining on a Java dataset.	✓	0.15
Experiments were conducted on the CONCODE dataset.	×	0.11
JaCoText achieves new state-of-the-art results on the CONCODE dataset.	✓	0.25
CodeGPT is trained from scratch on the CodeSearchNet dataset.	×	0.02
CodeGPT-adapted is initialized from GPT-2 pretrained weights.	×	0.03
PLBART uses the same architecture as BART-base.	×	0.06
PLBART uses three noising strategies: token masking, token deletion, and token infilling.	×	0.02
CoText uses the same architecture as T5base.	×	0.06
CoText is trained on both unimodal and bimodal data using the CodeSearchNet Corpus and GitHub Repositories.	×	0.06
On the CONCODE dataset, JaCoText-L-2CC-PL achieved a BLEU score of 39.87.	×	0.06
On the CONCODE dataset, JaCoText-L-2CC-PL achieved an Exact Match (EM) score of 22.45.	×	0.05
On the CONCODE dataset, JaCoText-L-2CC-PL achieved a CodeBLEU score of 42.49.	×	0.06
JaCoText-L-2CC-PL outperformed CoText-1CC, which achieved a CodeBLEU score of 40.14.	×	0.02
Reference [17] used a BiLSTM encoder and an RNN decoder to generate syntactically valid parse trees.	×	0.02

## References

- <http://arxiv.org/abs/1710.01487v1>

- <http://arxiv.org/abs/2303.12869v1>
- <http://arxiv.org/abs/1009.0305v1>