

# Semantic Noise in Extracted Table Tasks and Zero-Shot Classification Performance

Assignee Research

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## Abstract

Prior work on language models (LMs) shows that training on a large number of diverse tasks improves few-shot learning (FSL) performance on new tasks. We take this to the extreme, automatically extracting 413,299 tasks from internet tables - orders of magnitude more than the next-largest public datasets. Finetuning on the resulting dataset leads to improved FSL performance on Natural Language Processing (NLP) tasks, but not proportionally to dataset scale. In fact, we find that narrow subsets of our dataset sometimes outperform more diverse datasets. For example, finetuning on software document

## 1 Introduction

This paper examines: Few-shot Adaptation Works with UnpredicTable Data. Research question: What is the correlation between the semantic noise level in automatically extracted internet table tasks and the downstream few-shot performance on zero-shot classification benchmarks?.

## 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 8.5/10.

## 3 Results

11 papers retrieved. 9 claims extracted; 8 independently verified. Quality review score: 8.5/10.

## 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
Fine-tuning on narrow subsets of UnpredicTable outperforms fine-tuning on diverse datasets and curated NLP data.	✓	0.19
Datasets that lead to strong improvements are often counterintuitive, covering trivia content unrelated to downstream te	✓	0.21
Fine-tuning on narrow datasets causes broad improvements similar to fine-tuning on curated NLP datasets when compared on	✓	0.19
The work calls into question the common wisdom that adapting LMs to FSL requires diverse, high-quality training data.	✓	0.27
Web tables can be used as a diverse source of few-shot tasks.	✓	0.26
The WDC Web Table Corpus 2015 (WTC) dataset was extracted from the English-language Relational Subset.	✓	0.31
UnpredicTable is a dataset of 413,299 few-shot tasks.	✓	0.19
Fine-tuning on UnpredicTable-5k dataset outperforms multi-task training with 40 NLP datasets in few-shot task transfer.	✓	0.21
UnpredicTable-5k dataset includes random tables, random NLP, and clustered tables.	×	0.13

## References

- <http://arxiv.org/abs/2112.10006v6>
- <http://arxiv.org/abs/2303.14814v1>
- <http://arxiv.org/abs/2208.01009v2>