Self-Rationalization in the Wild: A Large-scale Out-of-Distribution Evaluation on NLI-related tasks

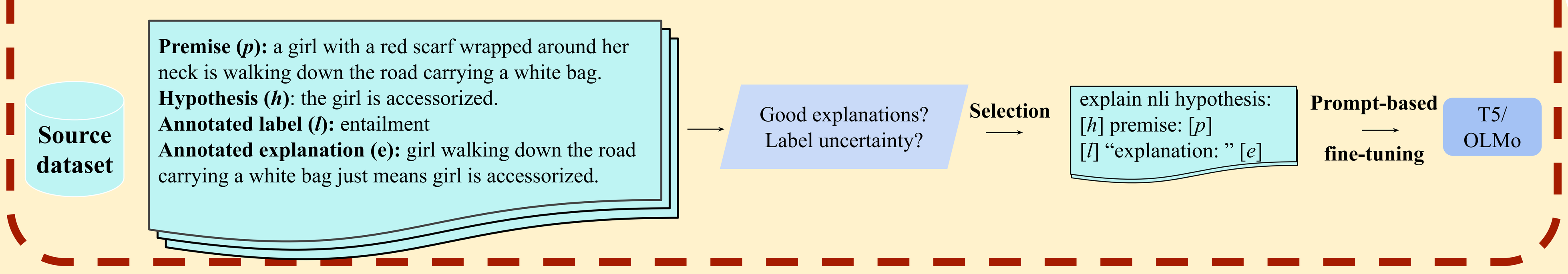
Jing Yang [1], Max Glockner[2], Anderson Rocha[1] and Iryna Gurevych[2]
[1]Artificial Intelligence Lab. (Recod.ai), Institute of Computing, University of Campinas, Brazil
[2] UKP Lab, Department of Computer Science, Technical University of Darmstadt, Germany

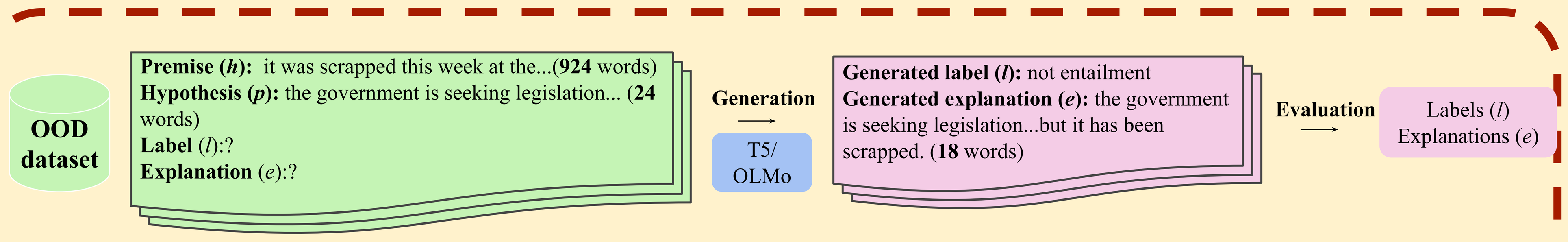
Motivation

- Datasets with explanations are scarce, raising challenges for learning and evaluation.
- Large-scale evaluation on large datasets with LLMs is computationally expensive, especially with long context input.

Self-Rationalization OOD Pipeline

Step **1: Learn to self-rationalize**



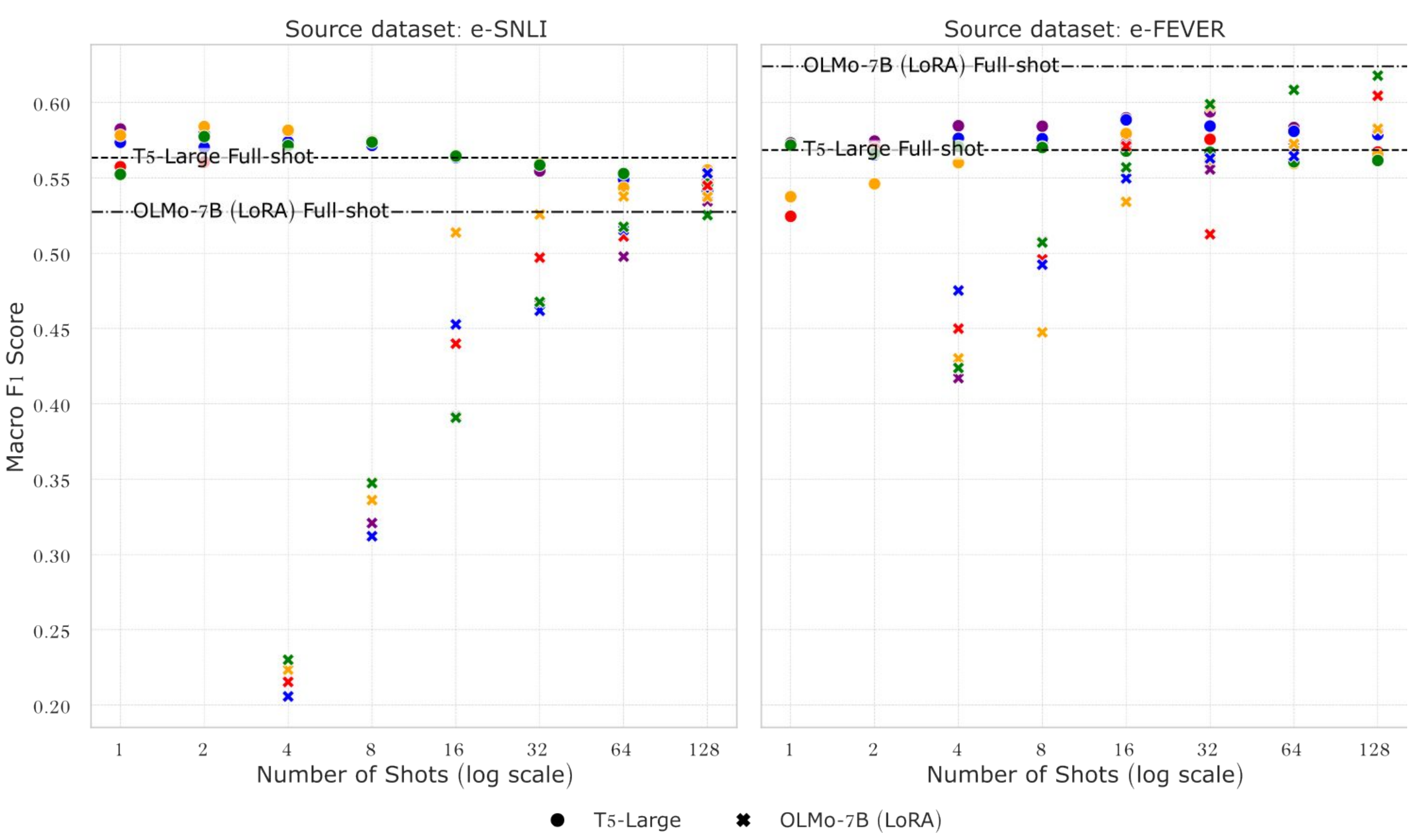


Step **2: Evaluate on OOD datasets**

OOD Datasets

Natural Language Inference	Fact-checking	Hallucination Detection of Abstractive Summarization
SICK, AddOneRTE, JOCI, DNC, MPE, HANS, WNLI, Glue Diagnostics, ConjNLI	Snopes, SciFACT, Climate-FEVER, VitaminC, COVID-Fact, FM2	FactCC, QAGS, XSUM Hallucination

Label Prediction Results



Fine-tuning on few-shot samples have comparable performance with Full-shot

Base model and source dataset has a large impact on label prediction performance

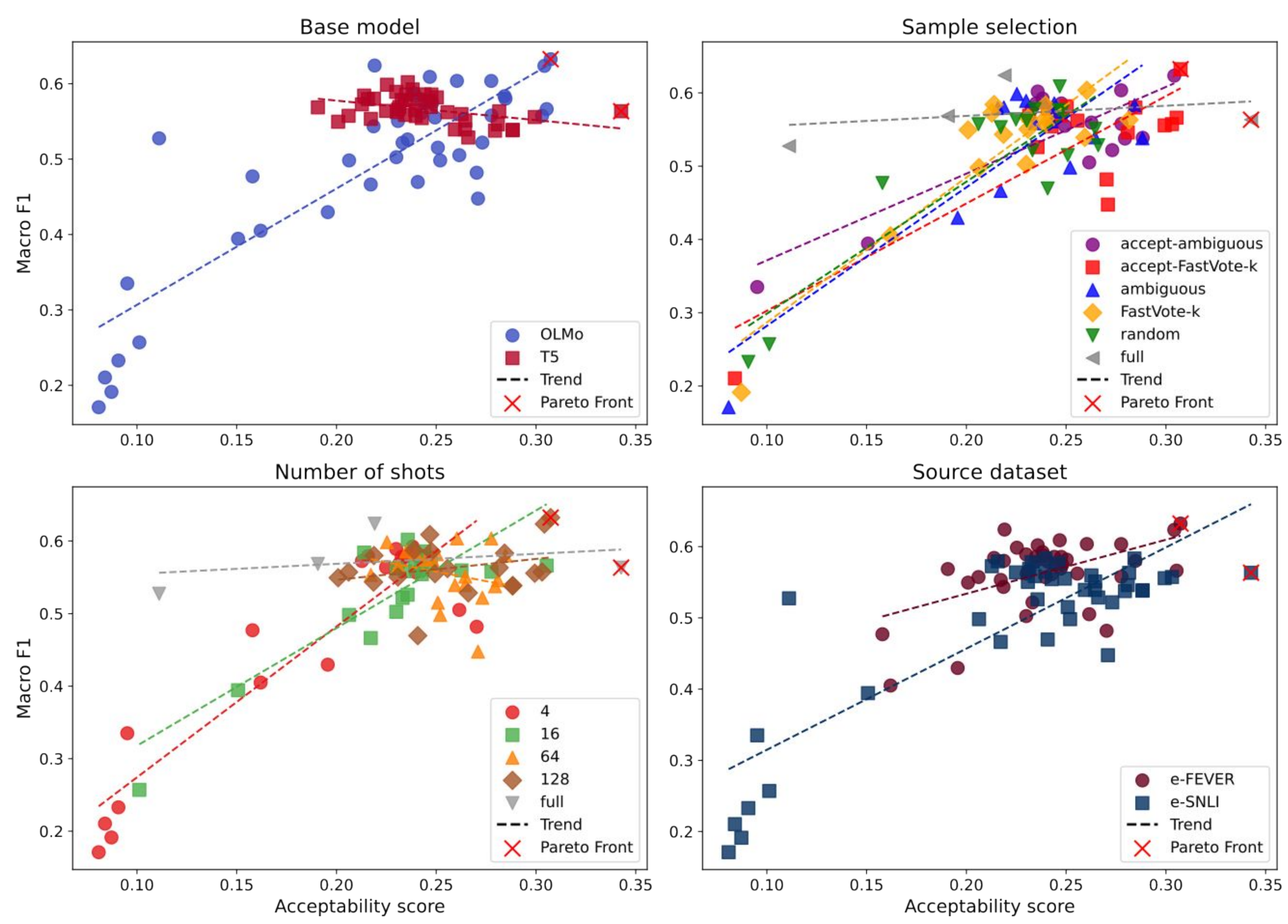
Automatic and Human evaluation

Automatic evaluation: Acceptability score, Themis, Auto-J, and TigerScore
Human evaluation: 468 crowd-workers from Prolific, judging the quality of explanations from 1,560 data instances
Table shows the correlation between the four metrics and human evaluation

Dataset	Auto-J	TigerScore	Themis	Accept.
SICK	-0,011	-0,220	0,400	**0,466**
VitaminC	0,163	-0,263	0,394	**0,469**
XSUM H.	0,223	-0,216	0,326	**0,475**
All	0,123	-0,219	0,387	**0,484**

Acceptability has the highest correlation with humans, while other three general LLM-as-a-judge evaluation metrics were not as reliable

Label Prediction vs Explanation Quality



Acceptability score (explanation quality) is positively related to Label Prediction Performance

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Paper & Code