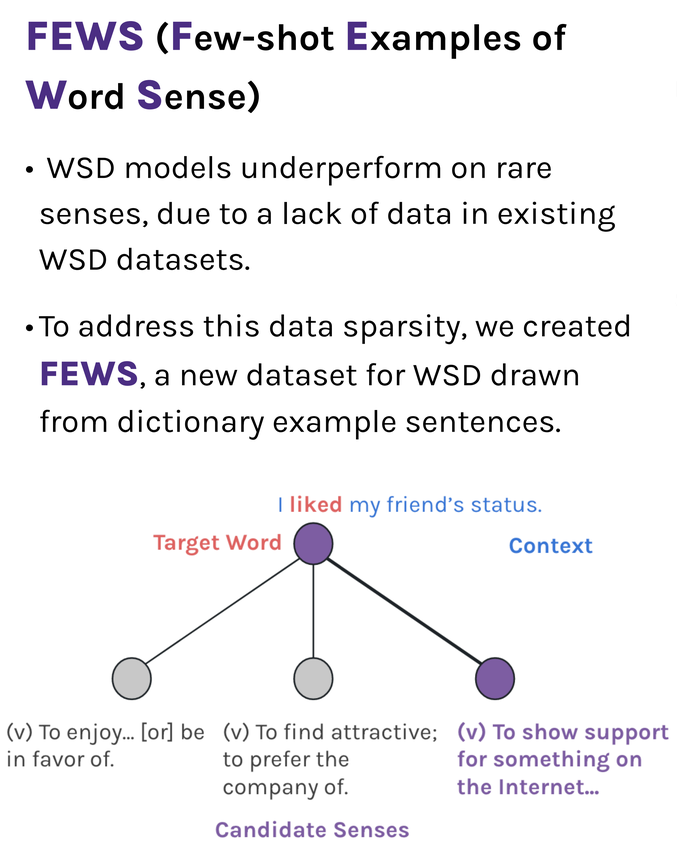
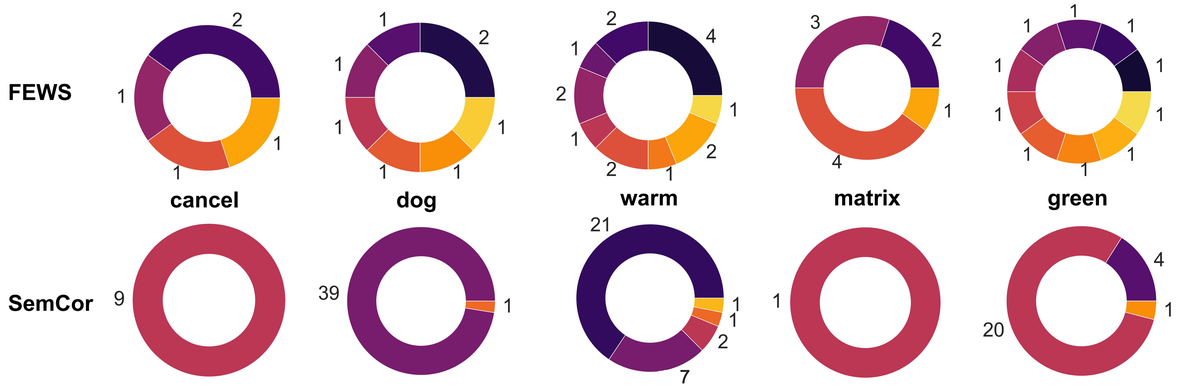
FEWS: Large-scale, Low-shot Word Sense Disambiguation with the Dictionary

Terra Blevins, Mandar Joshi, and Luke Zettlemoyer

FEWS (Few-shot Examples of Word Sense)

- WSD models underperform on rare senses, due to a lack of data in existing WSD datasets.
- To address this data sparsity, we created **FEWS**, a new dataset for WSD drawn from dictionary example sentences.

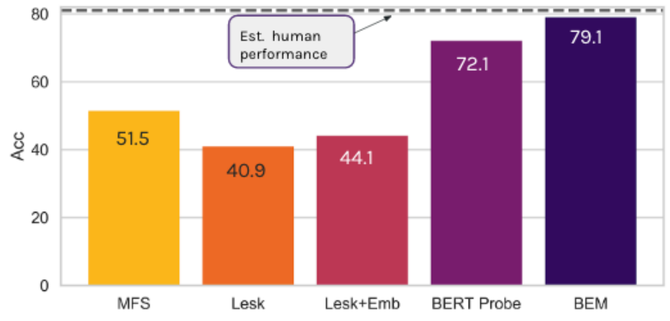




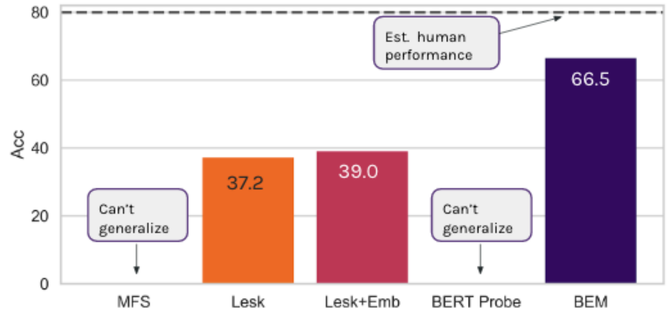
Dataset Analysis

- **FEWS** is a high-coverage...
- and few-shot dataset for WSD.
- **FEWS** covers a wide range of domains, including:
  - **new** domains (internet slang)
  - **technical** domains (medicine, computing)

Few-shot Baselines



Zero-shot Baselines



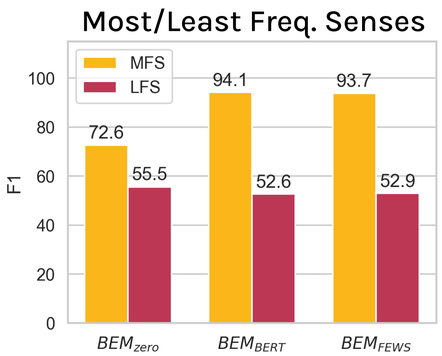
Dataset Composition

FEWS is drawn from examples in English Wiktionary

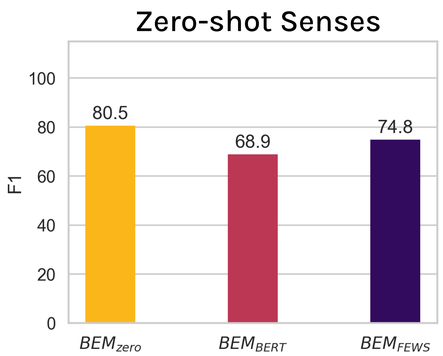
Data Split		# of Examples
Train		87,329
Ext. Train		101,459
Dev	Few-Shot	5,000
	Zero-shot	5,000
Test	Few-Shot	5,000
	Zero-shot	5,000

FEWS improves perfromance on rare senses!

Most/Least Freq. Senses



Zero-shot Senses



Perfromance on the Unified WSD Framework with...

BEM_{zero} → BEM trained only on **FEWS**

BEM_{BERT} → BEM trained only on SemCor

BEM_{FEWS} → BEM iteratively trained on **FEWS**, then SemCor

Takeaways

- **FEWS** is a new dataset for few-shot training and evaluation on WSD that covers many rare senses and domains
- **FEWS** improves performance on rare senses in other WSD settings
- Baselines for **FEWS** show there is room for future improvements on few-shot WSD!

Learn More about FEWS!

https://nlp.cs.washington.edu/fews/

blvns@cs.washington.edu