**A Deeper Look into Dependency-Based Word Embeddings**

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**Problem Statement**

- Prior work [1] has shown that embeddings trained using dependency contexts distinguish related words better than similar words.
- **What effects do decisions made with embeddings have on the characteristics of the word embeddings?**
- Do Universal Dependency (UD) embeddings capture different characteristics than English-tailored Stanford Dependency (SD) embeddings?

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**Similarity over Relatedness**

Does the model rank functionally similar words above related words (topically similar)?

- Similar: camel + bear
- Related: camel + hump

Evaluation: WordSim-353, Chiarello (AUC)

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**Training Variations**

- **Universal Dependencies (UD):** Cross-lingual
- **Stanford Dependencies (SD):** English-tailored

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**Ranked Similarity**

Does the model rank “more similar” above “less similar” words?

- ceiling-roof > ceiling-floor > ceiling-cathedral

Evaluation: SimLex-999 (Spearman)

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**Downstream Tasks**

Does the model have an effect on the downstream tasks of question classification and named entity recognition?

Evaluation: TREC QC (System: [2])

CONLL NER (System: [3])

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Universal Enhanced work the best; all much better than baselines.

Stanford Basic work the best; verbs most difficult, adjectives easiest.

Some tasks can benefit from dependency-based word embeddings, others not.

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