

# Context-Sensitive Lexicon Analysis

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## Introduction

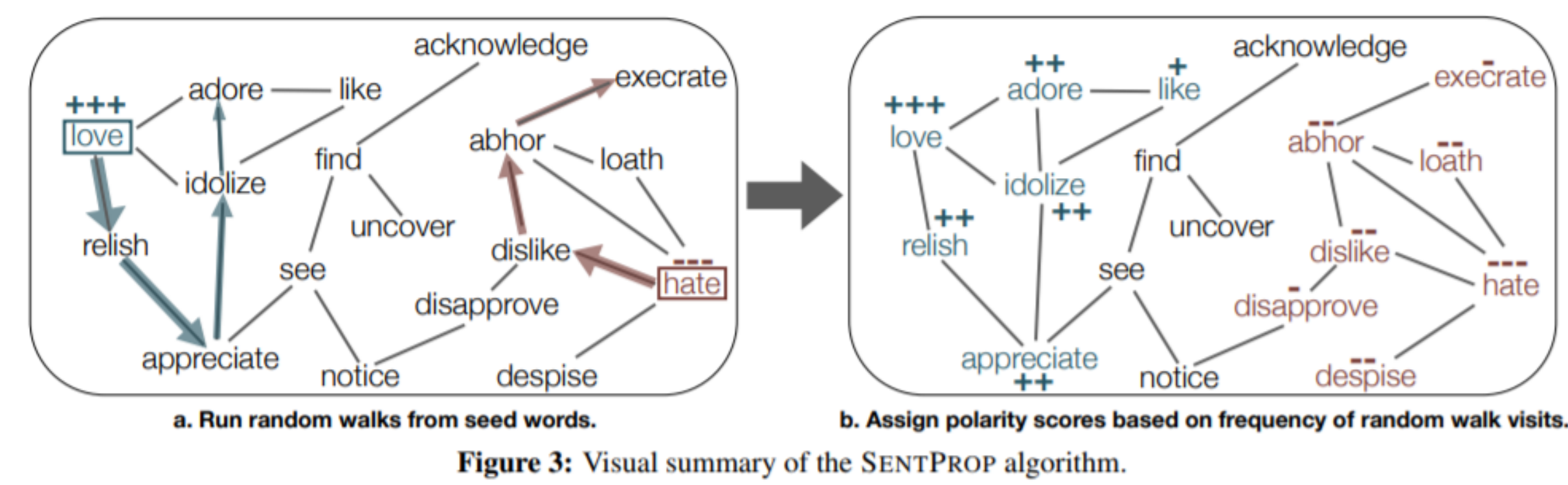
We investigate an existing lexicon sentiment with the following tools:

- 1 **Sentiment lexicons:** Words annotated with positive, neutral, or negative sentiment
- 2 **Word embedding:** Vector representations of a particular word.
- 3 **Seed words:** Root word to be used to score sentiment
- 4 **Label propagation algorithm:** Assigns labels to previously unlabeled data points

### Challenges:

- 1 Traditional sentiment analysis approach is **naïve**
- 2 **Simplify** implementations in [2]
- 3 **Evaluate** the difference between the old lexicons and new-calculated ones

## Label Propagation Algorithm



## Seed Words

Domain	Positive seed words	Negative seed words
Standard English	good, lovely, excellent, fortunate, pleasant, delightful, perfect, loved, love, happy	bad, horrible, poor, unfortunate, unpleasant, disgusting, evil, hated, hate, unhappy
Finance	successful, excellent, profit, beneficial, improving, improved, success, gains, positive	negligent, loss, volatile, wrong, losses, damages, bad, litigation, failure, down, negative
Twitter	love, loved, loves, awesome, nice, amazing, best, fantastic, correct, happy	hate, hated, hates, terrible, nasty, awful, worst, horrible, wrong, sad

Figure 1: An example of seed words

## Working Model

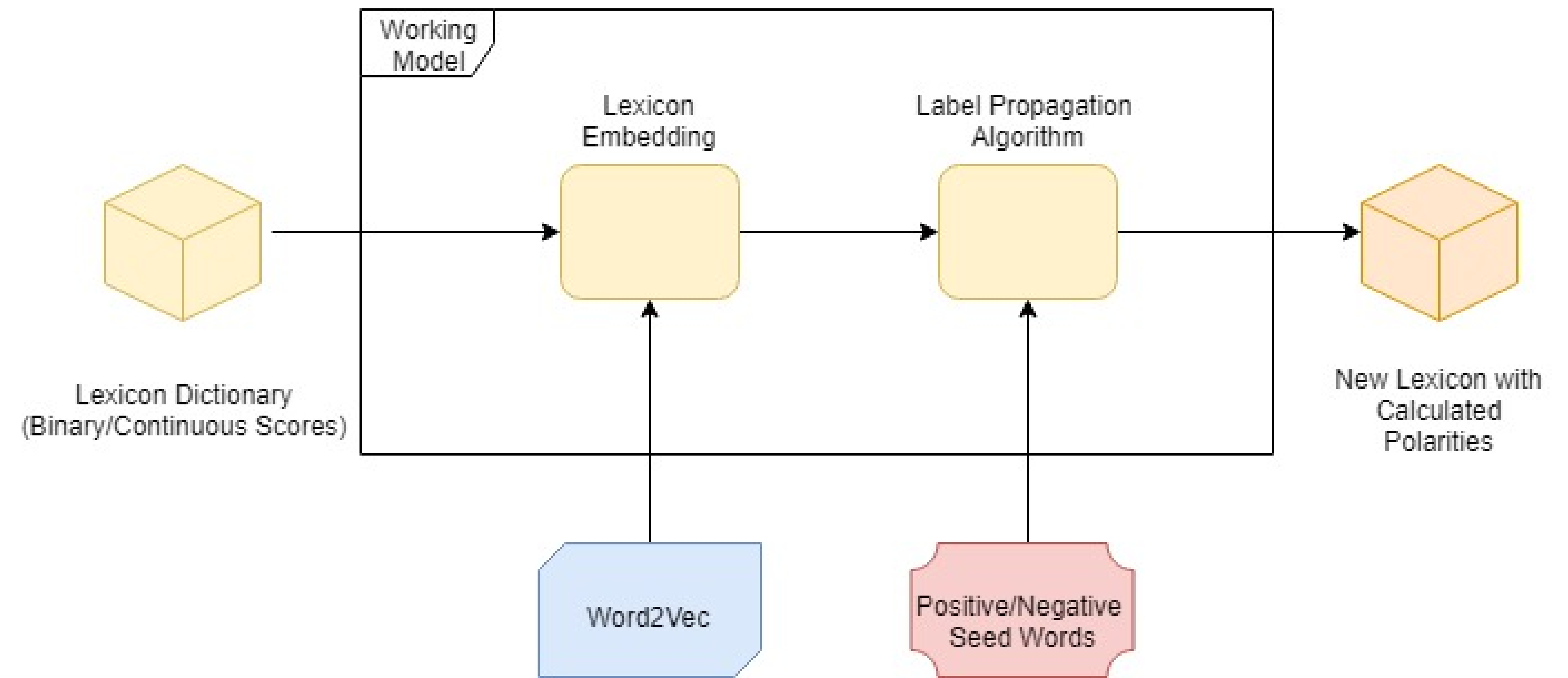


Figure 2: Model Workflow Chart

## Result

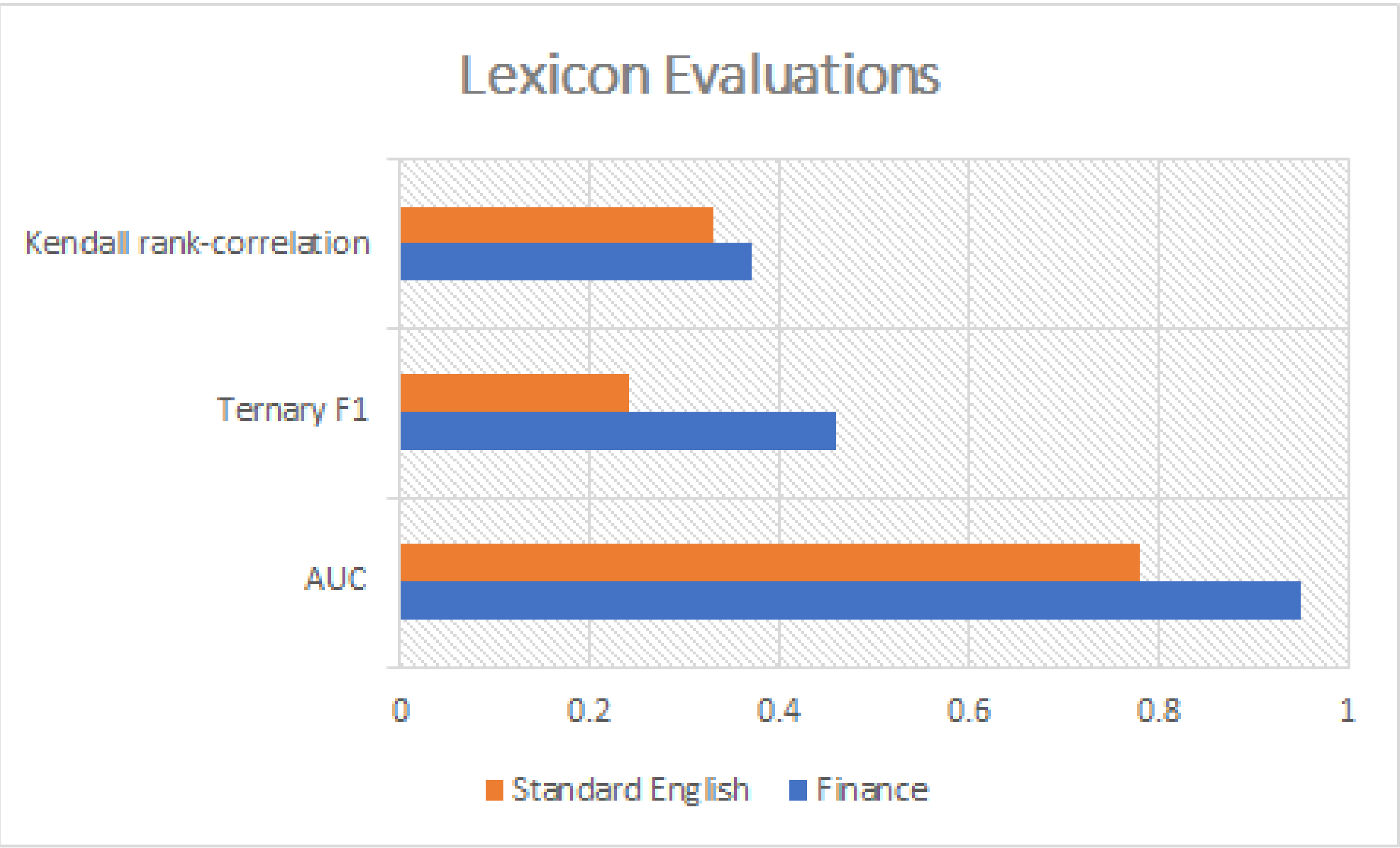


Figure 3: Sample graph

## Conclusion and More findings

- 1 Adding word embedding to pre-defined binary lexicon can provide more accurate values
  - 2 This is another one.
- Use additional evaluation metrics such as RMSE to compare the old lexcion with the new-calculated lexicon using Bi-directional RNN [3].
  - Use a large state-of-the-art word2vec embeddings or creating large domain-specific embeddings.
  - Experiment with more sophisticated sentence sentiment scoring than P-V/T. [1]

## References

[1] S. Blair-Goldensohn and G. A. Reis. Building a sentiment summarizer for local service reviews. 2008.  
[2] e. a. Hamilton, William L. Inducing domain-specific sentiment lexicons from unlabeled corpora., 2016.  
[3] D. T. V. Teng Zhiyang and Y. Zhang. Context-sensitive lexicon features for neural sentiment analysis. 2016.