

Survey of sentiment analysis

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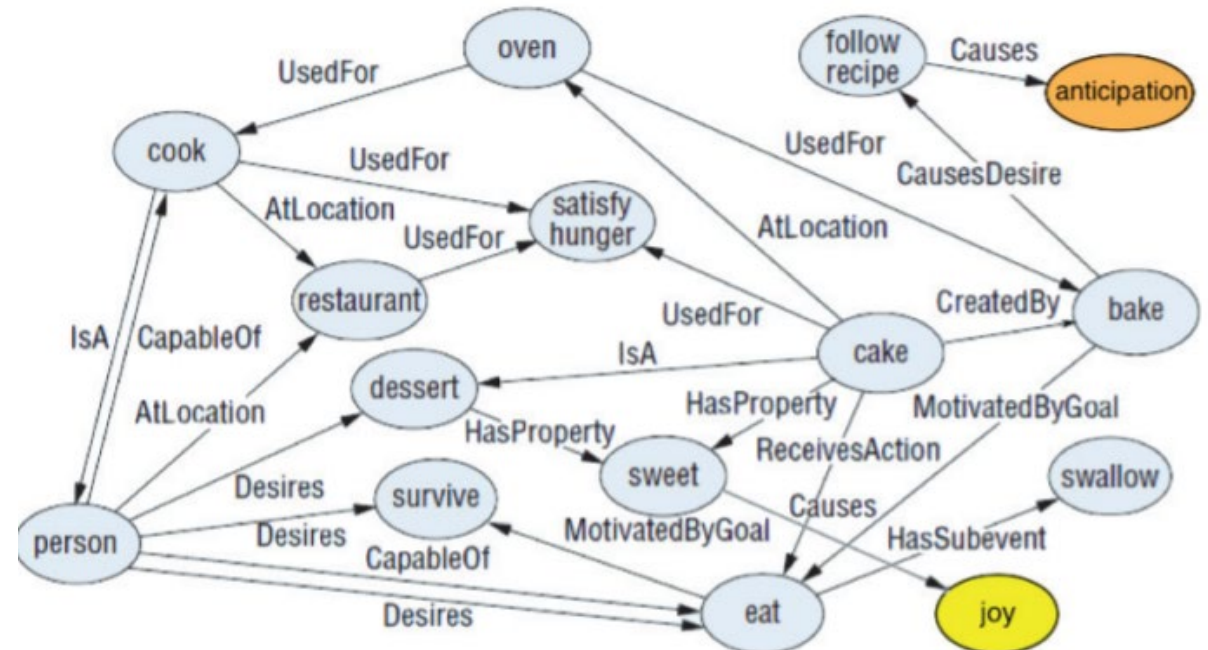
Classic Methods

- Word-embedding
- RNN/LSTM/CNN
- Classification (sometimes regression)
- Task: document level, sentence level, aspect level

AAAI 2018

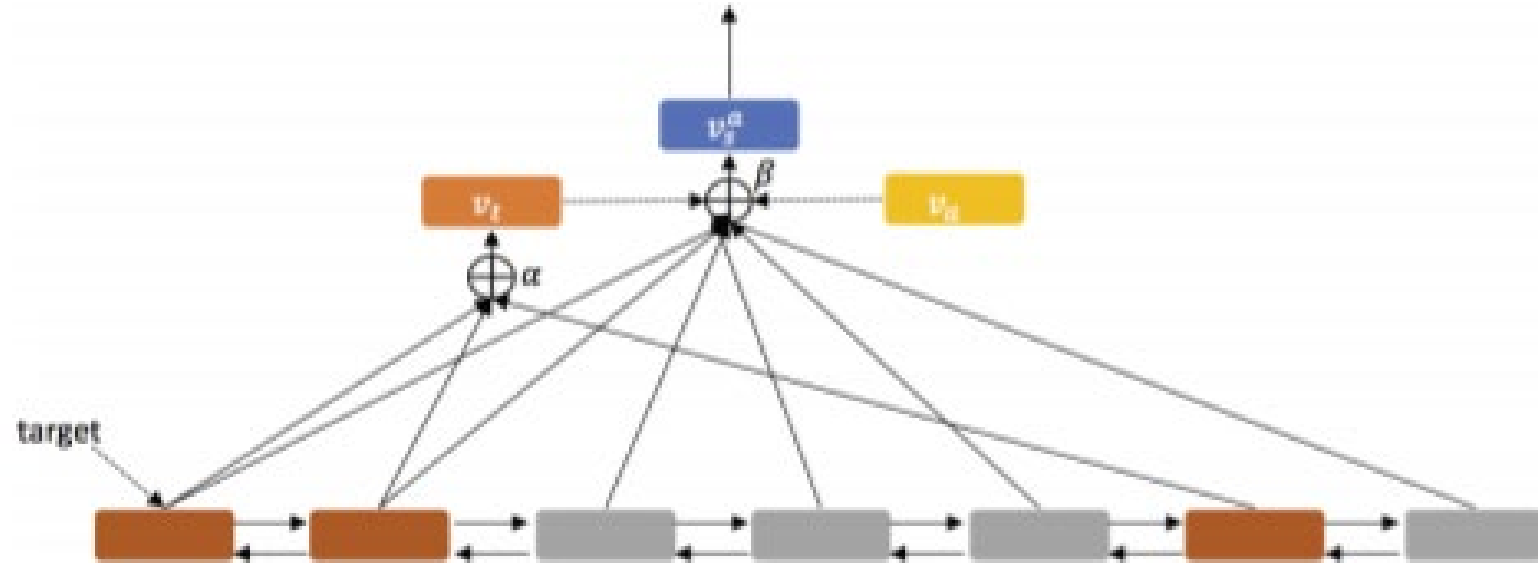
- Targeted Aspect-Based Sentiment Analysis via Embedding Commonsense Knowledge into an Attentive LSTM
- Task: Aspect level
- Novel Point: Common Sense (SentiNet)+Dimension Reduction

| SenticNet | IsA-pet | KindOf-food | Arises-joy | ... |
|-------------|---------|-------------|------------|-----|
| dog | 0.981 | 0 | 0.789 | ... |
| cupcake | 0 | 0.922 | 0.910 | ... |
| rotten fish | 0 | 0.459 | 0 | ... |
| police man | 0 | 0 | 0 | ... |
| win lottery | 0 | 0 | 0.991 | ... |



AAAI 2018

- Model:



- Sentic LSTM + Target Self-Attention + Sentence Attention
- My point: 1. New Feature 2. New LSTM



ACL 2018

- Transformation Networks for Target-Oriented Sentiment Classification Task: Aspect Level
- Novel Point:

Use convolutional max-pooling as attention:

Get the position relevance \mathbf{v} between a word and target (Others)

Use \mathbf{v} to help CNN locate the correct opinion

Feed to CNN2D

Non-linear and Max-pooling

ACL 2018

- Model : A context-preserving mechanism enabling the learning of target-specific word representations

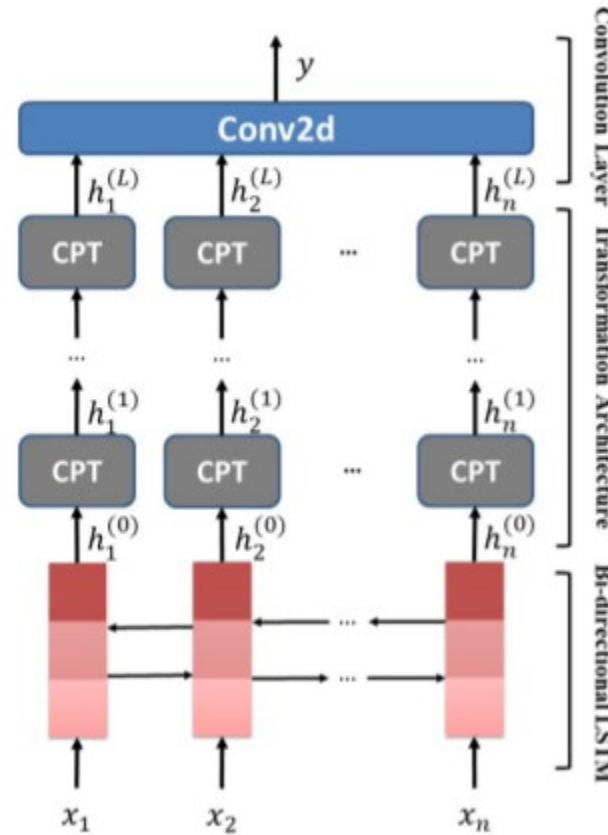


Figure 1: Architecture of TNet.

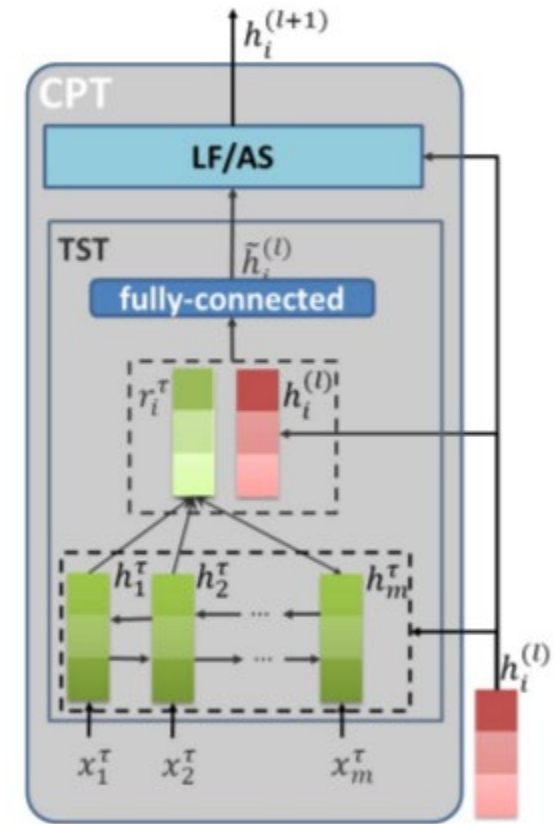


Figure 2: Details of a CPT module.



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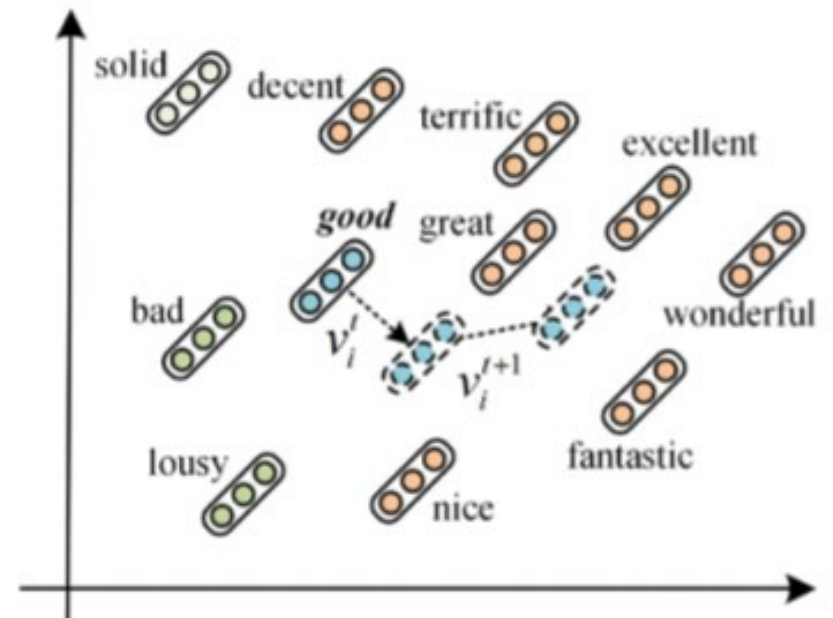
- Exploiting Domain Knowledge via Grouped Weight Sharing with Application to Text Categorization
- Task: Domain text categorization
- Novel Point: Add domain knowledge to help categorization
Weight sharing to get domain knowledge
- Question: grouping? Hash?

ACL 2017

- Refining Word Embeddings for Sentiment Analysis
- Task : adjusting the vector representations of words such that
 1. closer to both semantically and sentimentally similar words
 2. further away from sentimentally dissimilar words
 3. not too far away from the original vector

$\arg \min \Phi(V) =$

$$\arg \min \sum_{i=1}^n \left[\alpha \text{dist}(\mathbf{v}_i^{t+1}, \mathbf{v}_i^t) + \beta \sum_{j=1}^k w_{ij} \text{dist}(\mathbf{v}_i^{t+1}, \mathbf{v}_j^t) \right]$$



Summary

- Three research directions:
 1. Utilize state-of-the-art neural network structure
 2. Utilize domain knowledge
 3. Combine traditional methods like sentiment lexicons with modern methods