

Aspect based Sentiment Analysis (ABSA):

Ashwin Nimhan

Bloomington, Indiana

animhan@indiana.edu

Vipul Munot

Bloomington, Indiana

vipmunot@indiana.edu

Manashree Rao

Bloomington, Indiana

manarao@indiana.edu

Abstract:

Sentiment Analysis is a widely addressed Natural Language Processing task wherein the semantic orientation of a text unit is adjudged. However, a major challenge in Sentiment Analysis is the identification of entities towards which the opinion is expressed for which there are 2 subtasks:

Subtask 1: **Sentence-level ABSA**: The first part involves the extraction of the target entity and corresponding aspect term from a sentence. Secondly the polarity of the opinion corresponding to that aspect is predicted. It involves the following NLP tasks:

1. Part-of-speech tagging
2. Named entity recognition (NER)
3. Coreference resolution
4. Sentiment analysis

Subtask 2: **Text-level ABSA**: Next, from the given a set of customer reviews after identifying a target entity, the goal is to identify a set of {aspect, polarity} tuples that summarize the opinions expressed in each review.

We also plan on verifying the predicted polarity using deep learning(word embedding method) if time permits.

Dataset: Amazon product data by Julian McAuley, UCSD

This dataset contains product reviews and metadata from Amazon, including 142.8 million reviews spanning May 1996 - July 2014.

This dataset includes reviews (ratings, text, helpfulness votes), product metadata (descriptions, category information, price, brand, and image features), and links (also viewed/also bought graphs).

References:

1. Global Belief Recursive Neural Networks
Romain Paulus, Richard Socher, Christopher Manning
2. Parsing Natural Scenes and Natural Language with Recursive Neural Networks
Richard Socher, Cliff Chiung-Yu Lin, Andrew Y. Ng, Christopher D. Manning
3. Better Word Representations with Recursive Neural Networks for Morphology
Minh-Thang Luong, Richard, Socher, Christopher D. Manning
4. A Holistic Lexicon-Based Approach to Opinion Mining
Xiaowen Ding, Bing Liu, Philip S. Yu
5. Automatic Extraction of Contextual Valence Shifters
Noémi Boubel, Thomas François, Hubert Naets
6. Recognition of affect, judgment, and appreciation in text
Alena Neviarouskaya, Helmut Prendinger, Mitsuru Ishizuka
7. Topic sentiment mixture: modeling facets and opinions in weblogs.
Q. Mei, X. Ling, M. Wondra, H. Su, and C. Zhai. 2007.
8. Improving Twitter Sentiment Analysis with Topic-Based Mixture Modeling and Semi-Supervised Training
Bing Xiang
9. Deep Learning for Aspect-Based Sentiment Analysis

Bo Wang, Min Liu

10. UWB: Machine Learning Approach to Aspect-Based Sentiment Analysis

Toma's Brychcin, Michal Konkol, Josef Steinberger

11. Aspect based Sentiment Analysis

Ankit Singh and Md. Enayat Ullah

12. Image-based recommendations on styles and substitutes

J. McAuley, C. Targett, J. Shi, A. van den Hengel

13. Inferring networks of substitutable and complementary products

J. McAuley, R. Pandey, J. Leskovec