

Words with Attitude*

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Abstract

The traditional notion of word meaning used in natural language processing is literal or lexical meaning as used in dictionaries and lexicons. This relatively objective notion of lexical meaning is different from more subjective notions of emotive or affective meaning. Our aim is to come to grips with subjective aspects of meaning expressed in written texts, such as the attitude or value expressed in them. This paper explores how the structure of the WordNet lexical database might be used to assess affective or emotive meaning. In particular, we construct measures based on Osgood's semantic differential technique.

Suppose we can evaluate the subjective meaning expressed in a text. This would allow us to classify documents on subjective criteria, rather than on their factual content. There are several potential applications for such classifications, for example, providing summary statistics for search engines. Given the query "Crete travel review", a search engine could report, "There are 1000 hits of which 3/4 is a positive review". Another potential application is filtering "flames" for newsgroups.

Our aim is to come to grips with aspects of the subjective meaning expressed in written texts, such as the attitude or value expressed in them. Our working hypothesis is that subjective aspects of meaning can be derived from the particular choice of words in a text. That is, there are indeed words with attitude or values. Prominent candidates for this are modifiers, such as descriptive adjectives like 'beautiful' or 'good' (and their antonyms 'ugly' and 'bad'). This paper explores how to assess more subjective aspects of meaning by using the structure of the WordNet lexical database [1, 4].

Mainstream research in natural language processing deemphasizes more subjective aspects of meaning [2, 3]. Our work can be viewed as an attempt to rectify this. A consequence of going beyond the established notion of lexical meaning, is that there is no consensus on notions of affective or emotive meaning. So it is not immediate clear what notions to use. We decided to go back to one of the seminal works on measuring affective meaning, [5]'s semantic differential technique. From this, we took some of the

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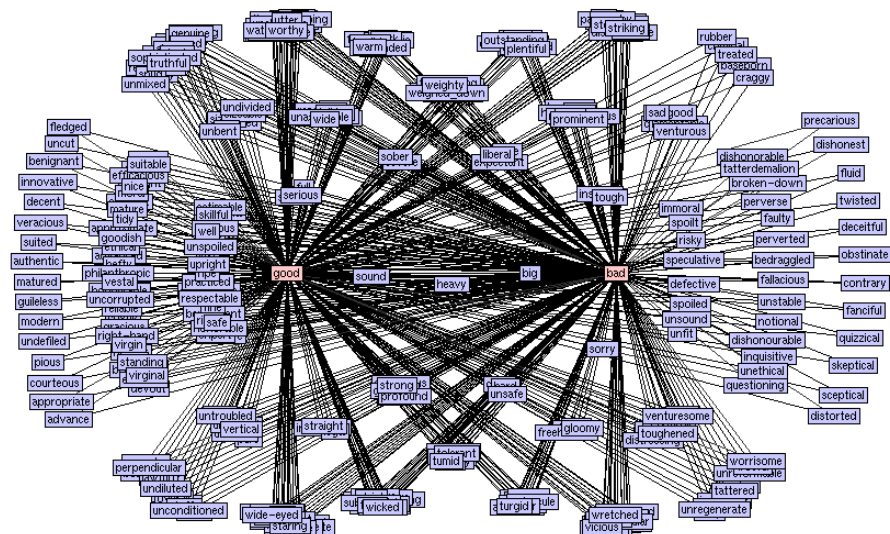


Figure 1: The minimal path lengths (MPL) of some adjectives in WORDNET to the adjectives ‘good’ and ‘bad’. Nodes are connected by edges of length corresponding to the MPL. The MPL is the smallest number of synonymy (SYNSEM) steps between two words.

most important factors of affective meaning, the evaluative, potency, and activity factors. The second crucial ingredient is our use of WordNet. The basic notion of meaning used in WordNet is lexical meaning, and WordNet’s main SYNSET relation is denoting coincidence of lexical meaning. We have transformed this SYNSET structure into concrete measures for the Osgood factors of meaning. All the three resulting measures single-out the same cluster of 5410 adjectives, which is 25% of the adjectives in WordNet. This cluster appears to have a special status: it contains all the important modifiers used to express affective or emotive meaning—these are words with attitude.

References

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