

Exploration of Sentiment Analysis using feature-based classification, and addressing negations using NLP

Tripti Anand¹, Rekha²

M. Tech. Scholar¹, Assistant Professor²
CBS Group of Institutions, Jhajjar (Haryana)
Maharishi Dayanand University, Rohtak

Abstract: Sentiment analysis is techniques of text analysis which detect text polarity automatically. Sentiment research is often called impression mining and is one of the NLP's (Natural Language Processing) main activities. Study of the emotions has attracted tremendous popularity in recent years. Individuals are supposed to build a mechanism capable of defining and classifying thoughts or emotions as expressed in an online document. Consumers frequently face the trade-off in purchasing choices and nowadays if you choose to purchase a consumer good you choose customer feedback and conversation regarding the product in online forums on the internet. When taking their purchasing choices, often customers use feedback shared by other users. People have a propensity to speak out about various institutions. Opinion mining has grown in popularity as a result. Sentiment Analysis assesses how this viewpoint shared regarding the object has a favorable or a negative orientation. Consumers ought to determine which subset of knowledge they choose to use. The method by which contextual meaning is defined and derived from raw data is known as sentiment analysis. An effective method for predicting feelings may enable one to collect views from the internet and predict the tastes of online consumers, which could prove useful for economic or marketing research. There are so far few specific problems that predominate in this research community, namely, classification of emotions, feature-based classification, and addressing negations. This paper provides a study of the approaches and strategies that exist in the area of sentiment analysis, and obstacles.

Keywords: Natural Language Processing, negative orientation, Sentiment analysis, Sentiment research

I. Introduction

Sentiment Studies are the applications of human language, text interpretation and computerized linguistics to classify and derive contextual knowledge from source sources, and are often related to under Opinion Mining. In certain terms, Sentiment analysis is a sort of linguistic method to measure the public's sentiment on a certain commodity or topic. It accepts an input list and gives a sensory level (very negative to very positive) in the range [-1 to 1]. This includes the development of a method for collecting and evaluating feedback on the commodity provided in blog articles, reports, comments or tweets. Analysis of emotions in different forms may be helpful. For example, it may help to impede the effectiveness of a marketing strategy or introduction of new goods, decide which variations of a product or service become common, and also evaluate whether populations have the same or different characteristics. Sentiment analyzes rely on behaviors, whereas conventional research is based on empirical study.

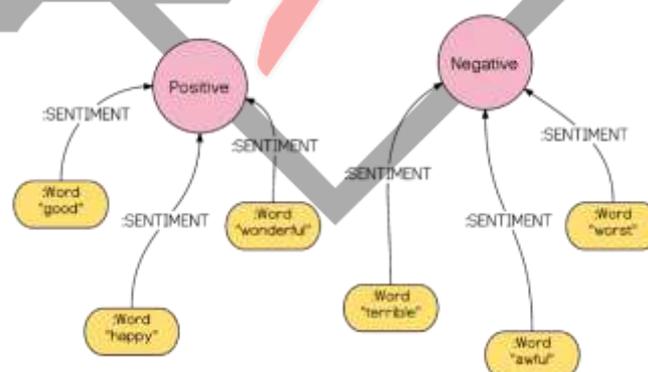


Fig: Sentiment Analysis

For emotion analysis there are three key areas of research: description of thinking, description of feelings depending on the features, and overview of opinions. Sentiment grouping includes the description of the views of other items in entire papers. Feature-based Grouping Sentiment on the other hand takes into consideration views on the characteristics of other products. The overview opinion function is not the conventional text review, because even the software functions where consumers share their opinions are compromised.

Natural language processing (NLP) is an area in computer science, artificial comprehension and computer linguistics that deals with machine-to - human languages and, in particular, programming computers to effectively manage broad corporates in natural languages. Natural language processing tasks also include interpreting the language, developing natural languages (sometimes from

structured functional structures, computer-readable), linking language to the experience of the user, handling or integrating human-computing communication systems.

Social networking has now developed into a common forum for citizens to share their opinions to the world. The Web is quickly evolving from a static platform to an immersive media. Consumers today will obtain details and produce contents effectively. Media, sites, journals, etc. They are the primary outlets of knowledge to the media. This electronic word of mouton offers a modern and observable knowledge base for several uses and it is called feel research. The document includes all cases and opinions, and may be analyzed through natural language therapy to achieve a specific amount of viewpoint opinions. This is the way to define and derive contextual details from raw data. Sometimes named viewpoint mining is sentiment-analyze. Sentiment research not only allows the customer to access more and more information with a single mouse click on specific goods and services, but also lets him make a more educated decision. A emotions report may be recorded because the emotion is synthesized as optimistic, negative or neutral in the entire text. This may be a paragraph on the grounds of which particular phrases of emotions are listed in the document. SA may be a statement dependent on the polarity of the words in a paragraph. Yes, it is optimistic or bad environment to classify relational interpretation role opinions conveyed in a letter. Natural language processing (NLP) is an area in linguistics, covering computers, artificial intelligence, the person (natural) and linguistic experiences. Of starters, in the analysis of the product, it decides if the characteristics of the product discussed by the reviser are good, negative or neutral. The statement, for example, "The lifespan of the mobile's batteries is too short," communicates a view on the mobile object's "existence of its batteries" and is pessimistic. By fact, the quality of an emotion analysis method is how good it is aligned with individual views. It is commonly calculated by consistency and warning.

II. Literature Review

The definition of emotion polarity is one of the key issues in the sentiment analysis. The concern is with splitting the text into a certain feeling polarity, positive or negative (or neutral), despite the composition of an item.

Three levels of emotion polarity are defined, including the level of records, the level of statements, persons and facets. The level of content is related to whether the entire article conveys negative or optimistic sentiment, and the level of paragraphs is related to the sentiment classification of each phrase.

- Nasukawa and Yi [1] would suggest that they convey feelings relevant to a positive or negative issue in the text, instead of describing the whole topic in positive or negative words. Throughout their nostalgic study, they often explain the underlying problem and the emotion conveyed throughout texts recognizes whether it is a good or a negative view.
- Ding et al [3] suggested a successful way of defining the semantically standards of consumer views on product characteristics. With the current approaches it will solve two key issues.
- (1) Terms of opinion whose contextual rules are context based and (2) several terms of opinion in a single sentence.
- A systematic method is recommended for (1) and can reliably evaluate the semantic direction of a review phrase.
- For (2), a new feature is introduced to replace the same expression with various terms of thought.
- Taylor et al [4] introduced a standardized concept that promises to be useful in a variety of industries for tourism opinion mining. In the Lake District tourism sector, they have also submitted their ideas to introduce the program effectively and solve a specific issue.

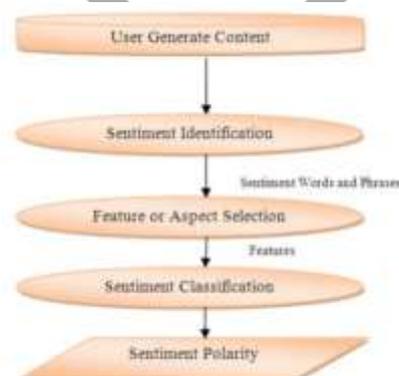


Fig: Sentiment Analysis Process

- An dimension polling method takes in Zhu et al [5] a set of textual reviews and other predefined features and determines the polarity of particular aspects of each analysis to produce an opinion sample.

The sentiment of online movie reviews has been analyzed by [6] Haddi, Lui [7], and Shi [8]. In addition to the chi-square method, which eliminates related attributes that do not affect orientation, various pre-processing methods can be combined to minimize noise in the document.

- The contrasts between SVM and ANN in Moraes, Valiati and Neto [9] were concentrated in the condition that a strong grading precision is needed. Experiments have evaluated in specific all approaches as a feature of the approach to bag-of-words (unigrams). The requisite contributions / findings are in two points relevant to sentiment learning literature. The first argument addresses the exact definition of a film analysis standard dataset. Secondly, in the balance of results, a detailed contrast.

III. Sentiment Analysis

Sensory processing is used in different ways and for different purposes. For starters, opinion analyzes on Twitter may be carried out to assess overall opinions on a certain phenomenon problem. Companies and brands use nostalgic reviews often to track the credibility of products through social media platforms or the whole network.

The tracking of contact center and customer service is one of the most widely-used tools for emotion analysis. While marketers strive to keep an eye on their customers' rhythms, sentiment analysis is more and more used to track products.

Political candidates and governments utilized opinion analyzes to track public views on political developments and campaign events, helping them to further relate their strategy and messaging to citizens and constituents. The consumer sentiment analysis model allows brands to detect peaks and valleys in the brand experience across the brand, or changes in attitudes towards a product or service in a brand reputation application, allowing companies to make exquisite improvements in response to customer requirements.

The results of quantitative perceptual analysis provide insights into the efficiency of call center and customer support personnel and can also be used as a useful indicator to assess the general opinion of a company's products and services. By analyzing the results of perceptual analysis for specific categories, companies can easily identify common issues, enhance customer support methods, and increase overall satisfaction between products or services.

By keeping track of attitudes and opinions about the quality of products, services, and even customer support, brands can recognize subtle changes in concepts and quickly adapt to growing public needs.

The key purpose of this study is to examine real life analysis. This approach provides a sound analyzes on natural language processing. There we explain how to get the analysis and add various functions. They will use an nltk package, which has already been found to delete a stop present in current sentence, while utilizing specific algorithms to identify the sentence.

IV. Conclusion

The study of perception or opinion mining is a research area, in which thoughts, perceptions or sentiments towards other individuals are studied. The paper discusses a significant issue in the study of emotions, the categorization of emotion polarity. Sentiment research continues to be enhanced and progressed still. In fact, a complicated term poses other problems, such as the polarity. Furthermore, the natural language vocabulary is all that causes difficulties. This thesis highlights the basic concepts of emotion analysis.

V. Future Scope

- This paper provides a study of sensation research approaches and processes and problems on the field.
- Classification of emotion, Classification of technology, instruments for the study of feelings present.
- A successful approach to predict emotions will help us to derive views from the web and predict online tastes of our consumers, which may be useful for economic or marketing analysis.

References

- [1] T. Nasukawa, "Sentiment Analysis: Capturing Favorability Using Natural Language Processing Definition of Sentiment Expressions," pp. 70–77, 2003.
- [2] K. Dave, I. Way, S. Lawrence, and D. M. Pennock, "Mining the Peanut Gallery: Opinion Extraction and Semantic Classification of Product Reviews," 2003.
- [3] X. Ding, S. M. Street, B. Liu, S. M. Street, P. S. Yu, and S. M. Street, "A Holistic Lexicon-Based Approach to Opinion Mining," pp. 231–239, 2008.
- [4] E. Marrese-Taylor, J. D. Velasquez, and F. Bravo-Marquez, "Opinion Zoom: A Modular Tool to Explore Tourism Opinions on the Web," 2013 IEEE/WIC/ACM Int. Jt. Conf. Web Intell. Intell. Agent Technol., pp. 261–264, Nov. 2013.
- [5] J. Zhu, H. Wang, M. Zhu, B. Tsou and Matthew M, "Aspect-Based Opinion Polling from Customer Reviews", " Ieee Transaction On Affective Computing", vol. 2, NO. 1, January-March 2011.
- [6] E. Haddi, X. Liu, and Y. Shi, "The Role of Text Pre-processing in Sentiment Analysis," Procedia Comput. Sci., vol. 17, pp. 26–32, Jan. 2013.
- [7] D. M. Blei, A. Y. Ng, and M. I. Jordan, "Latent Dirichlet Allocation," vol. 3, pp. 993–1022, 2003.

- [8] T. Hofmann. P. latent, “ semantic indexing,” In Proceedings of the 22nd annual international ACM SIGIR conference on Research and development in information retrieval, SIGIR '99, pages 50-57, New York, NY, USA, 1999. ACM
- [9] R. Moraes, J. F. Valiati, and W. P. Gavião Neto, “Document-level sentiment classification: An empirical comparison between SVM and ANN,” *Expert Syst. Appl.*, vol. 40, no. 2, pp. 621–633, Feb. 2013.
- [10] R. Arora and S. Srinivasa, “A Faceted Characterization of the Opinion Mining Landscape,” pp. 1–6, 2014.

