Chapter 84
An Overview of Methodologies and Challenges in Sentiment Analysis on Social Networks

Aditya Suresh Salunkhe
Ramrao Adik Institute of Technolgy, India

Pallavi Vijay Chavan
Ramrao Adik Institute of Technolgy, India

ABSTRACT

The expeditious increase in the adoption of social media over the last decade, determining and analyzing the attitude and opinion of masses related to a particular entity, has gained quite an importance. With the landing of the Web 2.0, many internet products like blogs, community chatrooms, forums, microblog are serving as a platform for people to express themselves. Such opinion is found in the form of messages, user-comments, news articles, personal blogs, tweets, surveys, status updates, etc. With sentiment analysis, it is possible to eliminate the need to manually going through each and every user comment by focusing on the contextual polarity of the text. Analyzing the sentiments could serve a number of applications like advertisements, recommendations, quality analysis, monetization provided on the web services, real-time analysis of data, analyzing notions related to candidates during election campaign, etc.

INTRODUCTION

The Cambridge dictionary defines sentiments as, "an opinion, thought, or an idea based on a feeling about a particular situation, or an approach of thinking about something" (Cambridge University Press, 2008).

Types of Sentiments

There are primarily two ways one can classify the sentiments being expressed in text.

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1. **Opinions:** This is something that the subject believes/decides. For instance, liked/disliked/expensive/low quality/affordable etc.
2. **Emotions:** This is something that the subject perceives or feels. For instance, happy/sad/satisfied/relaxed etc.

In this chapter we shall focus only on the opinions rather than emotions. Merriam-Webster dictionary has defined an opinion as ‘‘a judgment, a view or appraisal formed in the mind about a particular entity’’, or ‘‘a belief that is stronger than an impression but less strong than positive knowledge’’

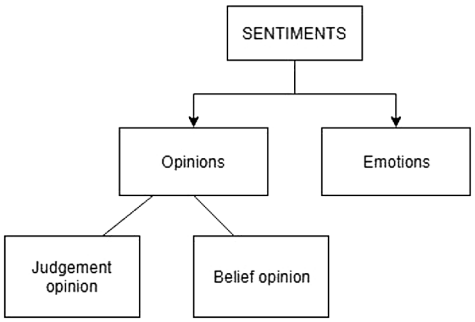
Thus there are 2 types of opinions:

- Judgement opinion: desirable/undesirable/disgusting/good/bad.
- Belief opinion: Possibly/likely/mostly/probably/true/false

Their internal structure can be defined with the help of a quadruple at minimum (Hovy, 2015).

- Topic = topic which is being considered.
- Holder = individual, group, institution holding or making the opinion.
- Claim = statement which is in regard with the topic.
- Valence (judgment opinions): – Positive/Negative/Neutral.
- Valence (belief opinions): – Believed/Disbelieved/Unsure/Neutral.

Figure 1. General classification of sentiments



- **Definition:** Opinion is a decision made by the holder i.e. person, group or an organization as a whole about a topic. One can add additional factors such as strength, facets, and conditions to the quadruple to extend the structure.
- Strength of opinion: It is difficult to establish strength across different holders.
- Facet of topic: It is used for narrowing down the topic and differentiate between its sub-facets. For example, not the “overall delivery time” but the time required for “product dispatch” for a particular goods delivery company.
- Argument/Reasoning: This opens up the argument structure. “I find the service quality poor because, (reason)”