Explaining Polarity in Sentiment Analysis

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Polarity in Sentiment analysis is a process generally used for social media analysis across multiple domains. A business, new product launch, new movie, etc., can carry out sentiment analysis to know the audience’s feelings, opinions, and what they think about it.

**Polarity in Sentiment Analysis**

One of the most used applications related to Natural Language Processing, sentiment analysis monitors a piece of text to know the opinion or sentiment expressed by it, either positive or negative. The sentiment has a positive or negative value attached to it called polarity.

Based on the positive, negative, or neutral sign of the polarity score, the overall sentiment of a text is determined. Sentiment analysis is therefore also called polarity detection and uses a set of techniques and AI algorithms to know the polarity of a particular text, statement, or document.

Generally, polarity is represented as a set of classes, including neutral, positive, or negative sentiment. It can also be a number representing the probability of a document being positive or negative. Sometimes, stars or grades are also used to represent polarity during sentiment analysis.

**Types of Sentiment Analysis**

Sentiment analysis mainly focuses on polarity, but it also helps detect specific positive or negative emotions, intentions, and feelings. Based on how a brand or business wants to interpret customer queries and feedback, it can define different categories for the analysis.

Here are the most common types of sentiment analysis-

* Graded Sentiment Analysis
* Emotion Detection
* Multilingual sentiment analysis
* Aspect-based sentiment analysis

**Importance of Sentiment Analysis**

Humans openly express their feelings and thoughts in life, and sentiment analysis is important to analyze and understand the sentiments behind them. Brands can analyze customer feedback, monitor customer opinions in surveys, forums, and social media interactions to know what makes their customers frustrated or happy.

By analyzing customer responses during a satisfaction survey, brands can recognize their strong and weak points. They can further use this analysis to improve their services and meet customer demands and expectations.

**Benefits of Sentiment Analysis**

**Large scale data sorting** – It is literally impossible to manually sort hundreds of tweets, surveys, or customer conversations in order to determine the customers’ sentiment polarity. Through sentiment analysis, a business can analyze lots of data effectively and track positive and negative sentiments.

**Consistent criteria** – While carrying out sentiment analysis and determining the polarity of sentiments, people don’t always agree with each other. Sentiments are subjective and depend upon beliefs, thoughts, and personal experience. Brands can use a central analysis system applying the same criteria to all data. This enhances the accuracy of sentiment analysis and offers better insights to negative, positive, or neutral sentiment.

**Real time analysis** – Brands can identify potential crises in real time through sentiment analysis. Instead of letting the situation escalate, brands can identify such situations and immediately work on resolving them.

**How to Carry Out Sentiment Analysis and Determine Sentiment Polarity**

When it comes to sentiment analysis for text, it can be carried out on individual sentences, a paragraph, or on the entire document. Either, the sentiment is determined for the entire text, or it is done for individual sentences, and then an aggregation is made.

Some brands rely on machine learning techniques, while some use human rule-based approaches for their customers’ sentiment analysis. Here are the major approaches commonly used-

* Supervised machine learning approach
* Rule based approach
* Hybrid approach
* Lexicon-based approach

**Lexicon-based Approach for Sentiment Analysis**

This approach is used when there is no pre-labeled data or training datasets. Negative and positive sentiment are predicted through databases, network, ontologies, and lexicons containing detailed information, specially prepared for sentiment analysis.

A lexicon is a book of words, or a dictionary specially created for the purpose of sentiment analysis. Most lexicons have pre-labeled negative or positive polar words with a sentiment score attached to them. Using technique like context, surrounding words, position of words, phrases, parts of speech, etc., scores are given to the text whose sentiment needs to be determined. The final sentiment is evaluated after aggregating all the scores.

Some of the most used lexicons for sentiment analysis include-

* Bing Liu’s lexicon
* SentiWordNet
* TextBlob lexicon
* AFINN lexicon
* VADER lexicon
* MPQA subjectivity lexicon

**Sentiment Analysis with TextBlob**

TextBlob is an NLP python library and uses Natural Language ToolKit. The ToolKit library offers access to many lexical resources and lets users work with classification, categorization, and other tasks. TextBlob supports complex operations and analysis of text data.

For such approaches, a sentiment is based on semantic orientation and word intensity in sentences. This needs a pre-labeled dictionary with positive and negative words. Individual scores are assigned to each word, and an aggregate is made at the end to calculate the overall sentiment of the text.

TextBlob helps determine the subjectivity and polarity of a sentence using its sentiment analysis algorithms. Polarity ranges between -1 to 1, where -1 is negative sentiment, and 1 is positive sentiment. Polarity is reversed for negation words, and there are other semantic labels there.

Subjectivity ranges from 0 to 1 and tells about the amount of factual information and personal opinion expressed by a text. Higher subjectivity shows more use of personal opinion and depends on the word intensity. Intensity shows whether a word modifies the word next to it. TextBlob is a great approach for accurate sentiment analysis.

**Apply Sentiment Analysis to Your Brand or Business**

There are endless applications and benefits of sentiment analysis, and every business in the world should use it. Determining the polarity of customers’ sentiments helps brand improve their overall services and know what their customers want or don’t want.

With the rise of artificial intelligence, it has become more convenient to carry out sentiment analysis. Moreover, there are lots of tutorials, applications, and courses focusing on sentiment analysis of customer feedback, business surveys, movie reviews, etc.