

# Chapter 10

## Employing the Sentiment Analysis Tool in NVivo 11 Plus on Social Media Data: Eight Initial Case Types

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### ABSTRACT

*Sentiment analysis has been used to assess people's feelings, attitudes, and beliefs, ranging from positive to negative, on a variety of phenomena. Several new autocoding features in NVivo 11 Plus enable the capturing of sentiment analysis and extraction of themes from text datasets. This chapter describes eight scenarios in which these tools may be applied to social media data, to (1) profile egos and entities, (2) analyze groups, (3) explore metadata for latent public conceptualizations, (4) examine trending public issues, (5) delve into public concepts, (6) observe public events, (7) analyze brand reputation, and (8) inspect text corpora for emergent insights.*

### INTRODUCTION

For those conducting research in the social sciences and other fields that overlap with human behavior, it is important to integrate insights from social media—given its wide adoption and popularity. Any social issue, by definition, has a public facing side. People go online to self-express and vent, to rally others to their cause, to raise public consciousness, and to engage in political activities. In an era of openness, as people go online to post status updates, selfies, tips, and resources—as messages, audio, video, and multimedia—the social media platforms that host such contents enable access to the direct shared digital contents as well as metadata and trace data. This all makes for torrents of public information made available by social media platforms through their application programming interfaces (APIs) and other means. The available social media data include contents (textual and multimedia, such as messaging, profile data, Tweetstreams, crowd-sourced encyclopedia articles, and others), metadata (tags), trace data

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(like interaction information), and others. For all the mystique and subjectivity of human connectivity, such social information may be collected within and across social media platforms, through the Web and Internet, for machine-processing and extracted insights. In some cases, social media insights (from user-generated data) are central to the research, and in others, it is complementary and peripheral.

Individual and mass sentiments are seen as possible indicators of a precursor event, an early signal, if you will. If people's communications on social media platforms are read as part of a sentient human sensor network, it may be possible to use such messaging as an early warning of anything with mass or destructive potential. Social media has been accused of enabling people to fall into massthink and to speed the sharing of misinformation, outrage, and judgment, and pushing the speed of events, to enable "tempests in a teacup." In environments where speed is key, people may suspend their critical filters and sense of disbelief, and go with unvetted information. For many, whatever is top-of-mind is simply shared as part of a quick status update, and information that is sent by a known individual or "friend" is merely retweeted and propagated throughout social media platforms without too much oversight, if any. As T. Haile, CEO of Chartbeat observed, people share information socially without reading the original shared article (Jeffries, 2014). Such records become then part of the public record and are eminently capturable, viewable, and analyzable. Mass sentiment may also be read as indicators of public attitudes about particular public figures, products, services, policies, and other in-world phenomena. Researchers have made headway in using computational linguistic analysis to explore the underlying causes behind sentiments and emotions, including multi-clause (and more complex) causes (Chen, Lee, Li, & Huang, 2010, p. 179). Other studies have probed how verbs—whether positive or negative or "bipolar-preference" (balanced in terms of both positive and negative polarity) in polarity preference—affect their direct objects (the nouns that receive the verb's action): "Given clear-cut polarity preferences of a verb, nouns, whose polarity is yet unknown, can now be classified. We reached a lower bound of 81% precision in our experiments, whereas the upper bound goes up to 92%" (Klenner & Petrakis, 2012, p. 35).

The intuition is that the observed expressed sentiments and emotions, whether explicit or implicit, are somehow reactive to something, whether from within or without, whether from a single cause or multiple causes. In one case, the research team used combinations of prepositions, conjunctions (subordinate and coordinate), "light verbs," "reported verbs," epistemic markers, and others (Chen, Lee, Li, & Huang, 2010, p. 183). There has also been work on respective cultures and proclivities to particular ideas based on cultural preconditioning. Likewise, there have been studies of individuals who tend to be suggestible and vulnerable to responding to others' ideas and instigations, even through remote messaging such as through social media.

Sentiment analysis is a subfield of natural (ordinary) language processing (NLP), which involves the formal computational study of evolved human languages. NLP draws on techniques from computer science, artificial intelligence (AI), computational linguistics, and text analytics (Luo, Chen, Xu, & Zhou, 2013, p. 53). Work in text summarization as a general category and computational sentiment analysis as a specific approach has been ongoing for the past decade. Recent advancements in research-enhancing software tools have enabled researchers without command-line and developer skills to access data that would not be available otherwise. Researchers are able to process textual data with increased affordances, such as fast machine "remote" reading or non-reading (as compared to human "close-reading" of text) and the extraction of identified themes or concepts and sentiment analysis.

QSR International's rollout of NVivo 11 Plus (on September 29, 2015) has much heralded because of some novel capabilities; this upgrade features a new sentiment analysis tool, which involves comparing a text or text corpus against a sentiment lexicon set (or dictionary) which quantifies words based on

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