The Shape of Cicero: A Sentiment Analysis of Cicero's Orations

While digital methods are increasingly being applied to the Humanities, sentiment analysis is a digital method that has not been utilized to its fullest potential. This method is most commonly used to measure the voice of a consumer through reviews and surveys, determining the polarity of the consumer's words and his or her attitude. "Polarity" refers to whether the words are positive, negative, or neutral; whereas "attitude" is the consumer's evaluation, affective state (the emotional effect he or she had while writing), or intended emotional communication (what he or she wants the audience to feel). In short, polarity is the numerical measurement of the words, and the attitude is the interpretation of those results. Sentiment analysis is not just limited to product and restaurant reviews. Political Scientists use this method to gauge reactions to political events by analyzing social media, especially Twitter.

Within the last few years, sentiment analysis began to gain traction in in the Humanities thanks to an English scholar and Digital Humanist named Matthew Jockers. He endeavored to apply sentiment analysis to his corpus of 19th century novels in order to trace the evolution of the emotional content within them. He graphed the polarity of every sentence across the stories, and his results were unexpected: "By accident I discovered that the sentiment I was detecting and measuring in the fiction could be used as a highly accurate proxy for plot movement" ("A Novel Method," 3). His graph for the novel *A Portrait of the Artist as a Young Man* by James Joyce resembled the "Man-in-the-Hole" plot which Kurt Vonnegut had drawn during a video-recorded lecture. In the same lecture, Vonnegut said, "There's no reason why simple shapes of stories can't be fed into computers" (0:21–0:25). That statement inspired Jockers to pursue plot detection through the use of sentiment analysis, and after much research, he claimed to have

found six different plot shapes in novels, which correspond to theories about a finite number of plots in novels by Christopher Booker and William Foster-Harris.

My experiment with sentiment analysis is a derivative of Jockers' method. I aimed to detect the "plot" of Cicero's orations and to find standard plot shapes within them. To do so, first I built a Latin sentiment lexicon, a list of a thousand words which are all ranked on a scale from -3 to +3. The scores assigned to emotionally charged words are based primarily on Stoic emotional theory (especially the theory as outlined by Cicero himself in Book 4 of *Tusculanae Disputationes*) and Robert Kaster's research on emotional scripts. After the lexicon was built, every section of his speeches were given a sentiment score in accordance with the lexicon, the sections' scores were graphed throughout the entire oration, and then the graphs were regularized through the use of a filter. At the end of my experiment, I found nine distinct shapes in Cicero's orations.

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