Abstract: Detecting emotions and evocative text

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The world of content creation is both a science and art, built on the notion that content needs to cater to a targeted audience and deliver its intended message. The writer develops a voice and tone that becomes a stylistic signature of their content. This project researches the types of emotions evoked by articles created during the tail end of the 2016 U.S. presidential elections with hopes to understand the emotional trends found in these articles and other politically charged content. The abstract highlights the objective of this research project, dataset utilized in the research, and the overarching methodology to study the dataset. We would like to thank the National Research Council Canada for granting permission to utilize their emotional lexicon, known as EmoLex, for this research project.

Understanding the type of emotions evoked by text in politically charged articles can help researchers decipher intent of the content, mode of delivery, and behavioral effects due to exposure to such content. This Data Challenge provides numerous datasets that contain approximately 13,000 posts from 200 websites. Included in the dataset is Kaggle Fake News, a list of articles and sources flagged and collected by a Chrome plugin called 'BS Detector'. The BS Detector is a browser extension that crawls through all links on a webpage for references to unreliable sources. It provides a warning to the user about such unreliable links and the page. The plugin classifies the webpage into various domains: (a) fake news; (b) satire; (c) extreme bias; (d) conspiracy theory; (e) rumor mill; (f) state news; (g) junk science; (h) clickbait; and (i) proceed with caution.

For this project, our team narrowed the dataset to information associated with flagged online news source *Mad World News*. There are 100 articles written by 9 *Mad World News* contributors between October 26th and November 1st from the previous year. The research focused on text of articles in websites that produce politically charged, bias content. The text during this timeframe is politically relevant given they were published during the U.S. presidential election campaign season.

Detecting emotions in an article sheds light on the cognitive linguistics utilized by contributors and editors, and further builds upon text and natural language processing research. In order to identify emotions evoked by *Mad World News data*, the project leverages an emotional lexicon generated by Saif M. Mohammad and Peter D. Turney[1] from the National Research Council Canada (NRCC). An emotion lexicon, as defined by [1], is "a list of emotions and words that are indicative of each emotion." The lexicon, known as EmoLex, can help identify emotions in the articles. EmoLex classifies terms based on emotions: anger, anticipation, disgust, fear, joy, sadness, surprise, and trust. For this project, the

[1] Saif M. Mohammad and Peter D. Turney, 2010. Emotions evoked by common words and phrases: using mechanical turk to create an emotion lexicon. In *CAAGET '10 Proceedings of the NAACL HLT 2010 Workshop on Computational Approaches to Analysis and Generation of Emotion in Text*, pages 26-34, Los Angeles, United States.

evocative words were retrieved from both headlines and articles written by *Mad World News* contributors and then they were paired with their associated emotion(s).

Below is a sample table that showcases the pertinent data and organization of extracted evocative words and emotions. It can be observed that the word *collapsed* (past tense of *collapse)* evokes three emotions*:* disgust, fear, and sadness. It is important to note that any terms that reflect a future or past tense form will be considered an evocative term and thus included in the table along with its associated emotions.

Author	Date	Title	Text	Source	Evocative Words	Emotions
Alisha Rich	10/16/2016	Man's Collapsed Driveway Reveals Hole & Ladder, Shocked When He Goes Down	A man was pulling out of his…	madworldnews.com	collapsed	disgust, fear, sadness

Once the emotions are identified, researchers can then evaluate any patterns that writers display in their articles for similar politically charged websites. This can help gauge the intended objective of an article or a set of publications during a given timeframe. Also, this set of tagged terms and associated emotions can assist developers, researchers, and content creators develop a style guide that humans and/or bots can be trained on to publish content to evoke a desired reaction. In conclusion, the study of emotions in the natural language processing (NLP) and information diffusion realms can provide a pathway to understanding behavioral gaming and content virality in the digital and social media spheres.