FOX Newsletter Analysis

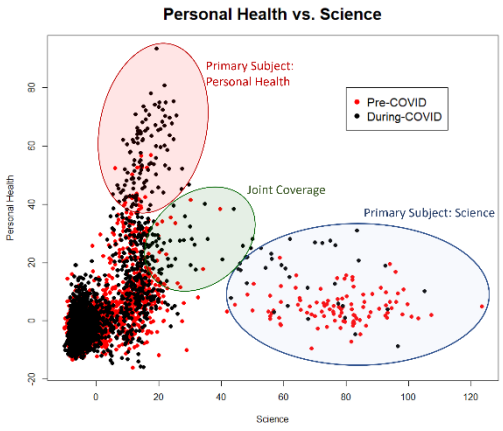
Opportunity

In recent years, the messaging put forth by FOX News has come under quite a bit of scrutiny for its divisive rhetoric and apparent disdain for mainstream science. The COVID-19 pandemic seemed to exacerbate these factors, with much of their primetime programming being spent discrediting government health officials and their advice and research confirming that people who live in geographical areas where FOX News has high viewership were less likely to adhere to social distancing guidelines [1]. Using a corpus of newsletters collected from several FOX News outlets both before and after the onset of the pandemic, we sought to apply Natural Language Processing (NLP) techniques to quantify and analyze the rhetoric produced by FOX News, and characterize the change in messaging exhibited after the onset of the COVID-19 pandemic.

Methodology

The NLP technique Term Frequency/Inverse Document Frequency (TF-IDF) was first used to quantify the importance of every word in each newsletter. Then the dimensionality reduction technique Principle Component Analysis (PCA) was used to group words that often appeared together into composite variables representing a larger subject consisting of many terms. For example, “science”, “study”, and “nasa” among other terms were grouped together and labeled as simply “Science” – other major subjects identified include Personal Health and US Politics. VADER Sentiment Analysis, another NLP technique, was used to measure Positivity, Negativity, and Neutrality strength of each document. Finally, the classification algorithm Linear Discriminant Analysis (LDA) was applied to characterize the difference messaging trends around these subjects before and after the start of the pandemic.

Conclusions



Initially, I was surprised to learn that there was no significant change in sentiment trends (that is, Positivity and Negativity) in newsletters concerning Science after the pandemic began. However after drilling down, the reason for this became evident: in pandemic-era newsletters, Science-focused emails were far more scarce than they had been pre-COVID. Conversely, the subject of Personal Health (which contains words like “lifestyle” and “treat”) became much more prominent during the pandemic. On its own, this increase is understandable – with everyone trying to stay safe from COVID, a higher amount of content focused on health advice makes sense. However, when coupled with the decrease in Science, this change indicates

that the content labeled Personal Health contains health advice not based in scientific findings. While there are a select few documents in either era were identified as having moderately high scores in both Science and Personal Health (identified in the plot above as “Joint Coverage”), the division between these two subjects is stark. At a time when science literacy is critically important, this trend has the potential to be quite problematic.

Recommendations

To account for this lack of science-informed health advice, trust in science must be regained where possible. A campaign of public education into what “Science” actually means (it’s a process, not just a bunch of facts!) aimed at an all-ages audience in geographic areas with large FOX News audiences could restore trust in science, and the processes necessary to reach scientific conclusions. This campaign should include inexpensive, interactive experiments where results defy the common-sense expectations and are obvious to the eye. A common example is predicting how many drops of water a can penny hold – invariably, the answer is much higher than expected due to the unseen interactions of surface tension.

The purpose of these proposed demonstrations is to illustrate that *science is a process*, and medical advice should always be based on the findings of those who go through the process of science rather than “common sense”. Ideally, these demonstrations should be done live, in-person, at a public venue (parks, rec centers, street fests, etc.) and led by a charismatic individual who is either a member of the local community or is at least seen to conform to local culture.

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References

[1] https://www.nber.org/papers/w27237