Emotional Language in News: Detection and Intervention

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Problem Statement

- **Problem:** Biased and emotional language in news reporting can manipulate reader perspectives, much like its observed influence in phishing scams.

- **Approach:** Leverage existing tools to examine correlations between media bias and emotional language. Develop a web plugin prototype to highlight emotional sentences in news articles to assist readers in reading more neutral tone news reporting.
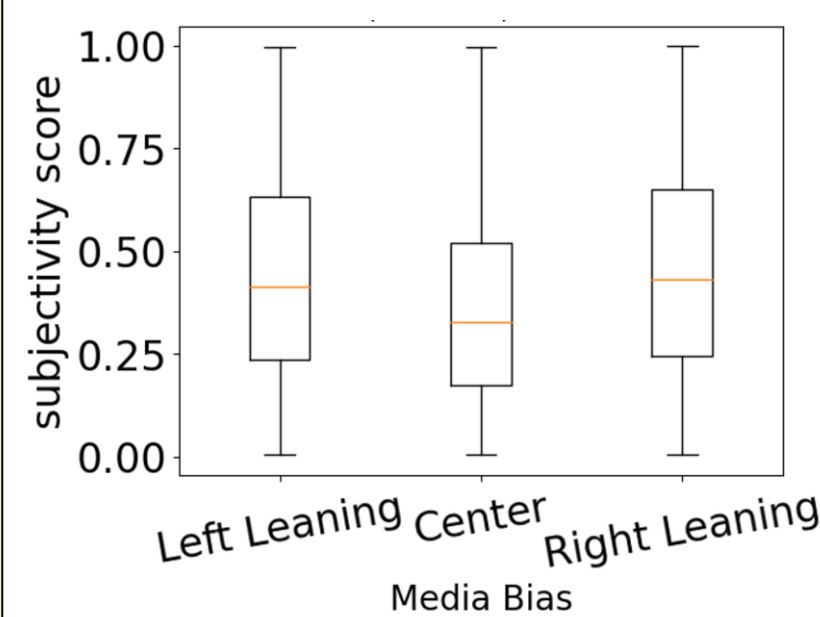
Approach and Overview

1. **Data Collection:** Collected **political articles** from POLUSA dataset 8 **left, center, and right leaning** media. Each source has 500 articles that were split into samples of 4000 sentences for *sentence-level analysis*.

2. **Existing Tools:** Used **NLP models** to identify **intentional and emotional** language in data.

Emotion	Sentiment	Subjectivity
Hugging Face distilroBERTa	Google NLP API	Hugging Face BERT base

3. **Pair-wise Annotations:** Conducted to test accuracy of individual tools vs. combinations.

4. **Data Analysis:** Visualized correlations between media bias and subjective, emotional language.

Challenges & Limitations

- **Lack of Models:** No existing emotion detection model uses news articles as training data.

- **Lack of Annotations:** No labeled data of news articles with emotions (Writer perspective) for model training purposes.

- **Accuracy of tools:** Need further testing to prove effectiveness on studying correlations.

Future Work

1. **Web Plugin:** Develop a web plugin to alert news readers to emotional language (See right).

2. **Generation Model:** Replace emotional language writing with neutral tone using GPT.
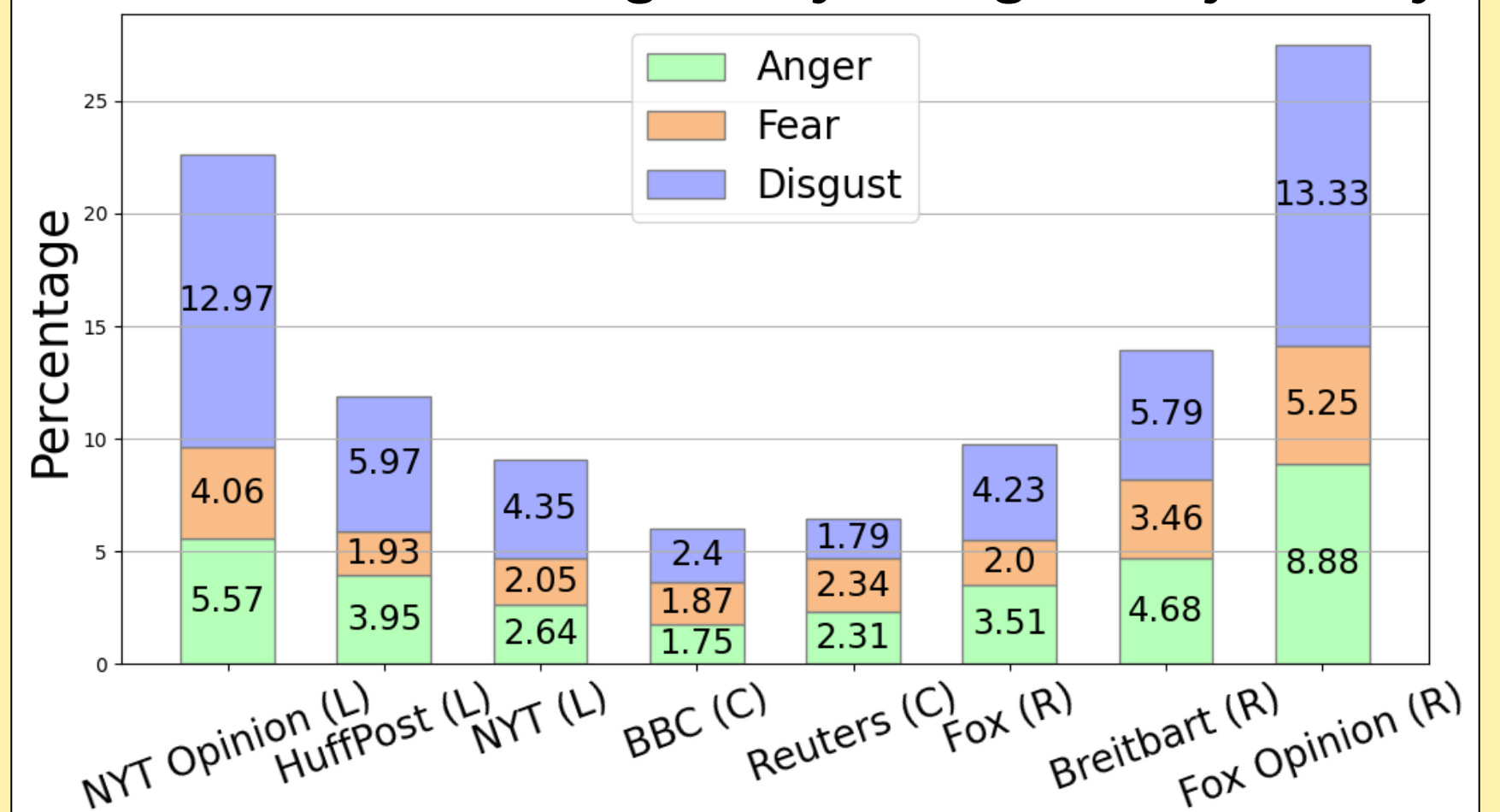
Results

-Subjectivity Scores Among Media Bias-

- On average, **leaning media** have ~10% **higher subjectivity** scores

-% Sentences w/ Negativity & High Subjectivity-

- On average, **leaning media** use ~2 times **more subjective and negative emotions** and ~2.5 times more **disgust emotion**.

- The more extreme the media bias **AllSides** rating, the higher the % of emotional language.

-Future Work: Web Plug-in Design-

United States

Obama, Biden reunite at White House to tout Obamacare, new provision

By Nandita Bose and Jeff Mason
April 5, 2022 7:45 PM PDT - Updated a year ago

Unfortunately, thanks to Obamacare, it's now about an intrusive government that has forced people off their health plans, away from their physicians, and to the brink of bankruptcy due to skyrocketing it is difficult to determine

After eight infuriating years, I am beyond trying to fathom whether his intentional gibberish masks some misguided be strategy, some dogma to which he is hopelessly b if the underlying motive e sinister.

- **Objective:** Highlight emotional language & replace subjective language.

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