**INTRODUCTION**

Using the data of tens of thousands of eBooks from the Project Gutenberg corpus, we analyzed differences in sentiments found in texts over various locations and years.

**METHODOLOGY**

1. Measured the distributions of sentiments across texts.
   
   We examined sentiment from two perspectives:
   
   - Using the NRC Emotional Intensity Lexicon (NRC-EIL), we measured the distribution of eight basic emotions as described by psychologist Robert Plutchik, including anger, anticipation, disgust, fear, joy, sadness, surprise, and trust.
   
<table>
<thead>
<tr>
<th>Word</th>
<th>Fear</th>
<th>Word</th>
<th>Joy</th>
</tr>
</thead>
<tbody>
<tr>
<td>horror</td>
<td>0.923</td>
<td>sohappy</td>
<td>0.868</td>
</tr>
<tr>
<td>horrified</td>
<td>0.922</td>
<td>superb</td>
<td>0.864</td>
</tr>
<tr>
<td>hellish</td>
<td>0.828</td>
<td>cheered</td>
<td>0.773</td>
</tr>
<tr>
<td>grenade</td>
<td>0.828</td>
<td>positivity</td>
<td>0.773</td>
</tr>
<tr>
<td>tragedies</td>
<td>0.750</td>
<td>bestfeeling</td>
<td>0.712</td>
</tr>
<tr>
<td>anguish</td>
<td>0.703</td>
<td>complement</td>
<td>0.647</td>
</tr>
<tr>
<td>grisly</td>
<td>0.703</td>
<td>affection</td>
<td>0.647</td>
</tr>
<tr>
<td>cutthroat</td>
<td>0.664</td>
<td>exalted</td>
<td>0.591</td>
</tr>
<tr>
<td>pandemic</td>
<td>0.664</td>
<td>woof</td>
<td>0.588</td>
</tr>
</tbody>
</table>
   
   - Using the Valence Aware Dictionary and sEntiment Reasoner (VADER), we measured the polarity between positive and negative sentiments.

2. Extracted information about locations and time periods associated with texts from a metadata file.

   "edition date": 1909,
   "first publish date": 1909,
   "subjects": ["Vassar College"],
   "title": "Earliest Years at Vassar: Personal Recollections"

3. Used Wikidata to obtain information about given locations on different levels, such as on the city level, county level, state level, and country level.

4. Plotly for Python used to create maps and graphs depicting sentiment trends throughout time and in different locations.

**FUTURE WORK**

- Counting locations for each book according to more lenient guidelines (locations mentioned in the book as well as author Wikidata).
- Looking into more comprehensive sentiment lexicons.
- Studying more books from countries not in Europe or North America, and in other languages.

**DATA VISUALIZATION**

- Figure 1. A map visualizing joy in literature from different countries. Warmer colors signify greater values, and cooler colors signify lower values.
- Figure 2. A map visualizing sentiment from authors in different cities, specifically in the year 1852. Again, warmer colors signify greater values, and cooler colors signify lower values.
- Figure 3. A stacked area plot showing positive and negative sentiment in literature in decades ranging from the 1630s to the 1950s.

**REFERENCES**


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