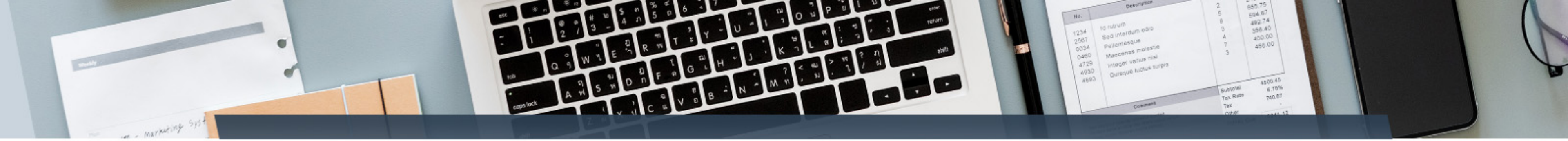
What Makes the News?

A Topic Classification by Max Lan



The State of the Media

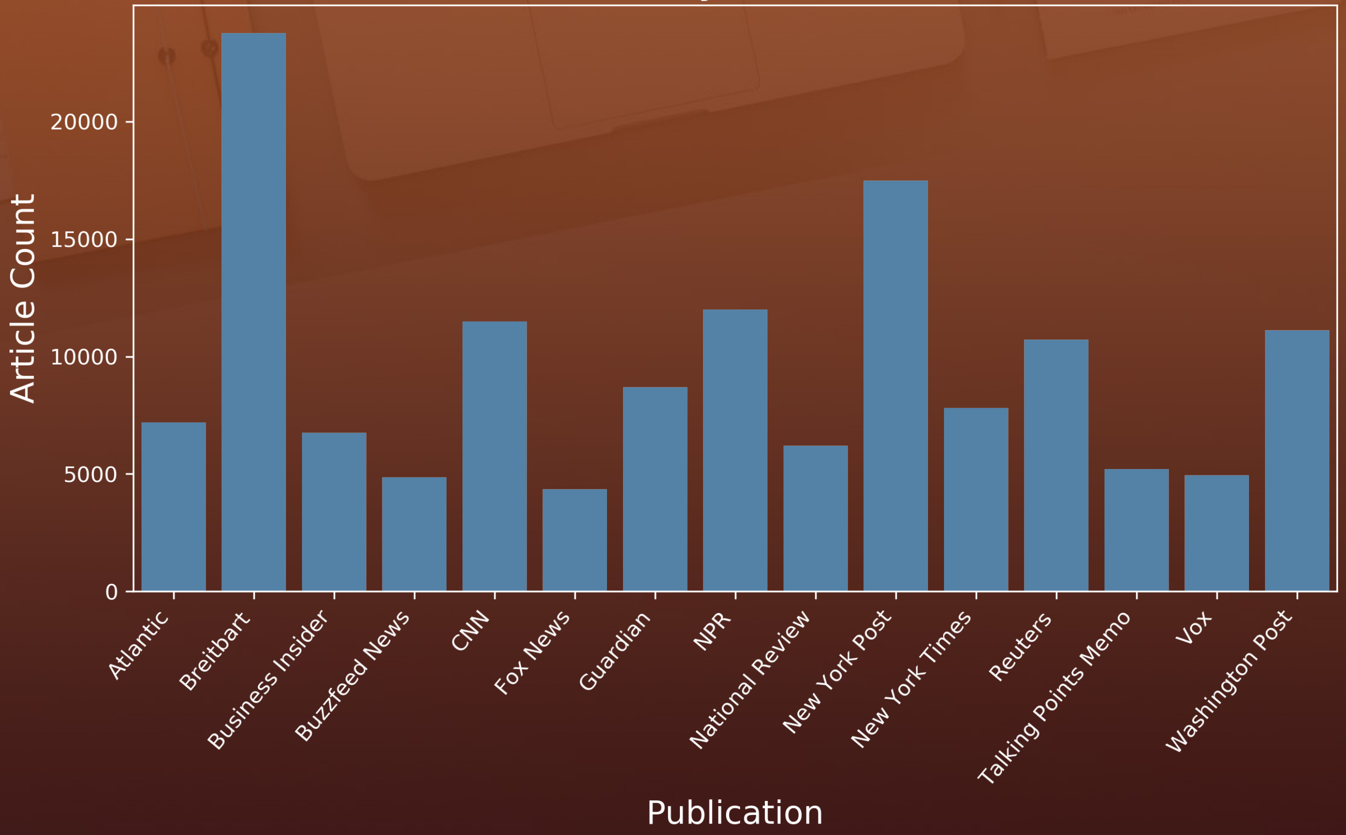
- US Newsroom employment declined 25% from 2008 to 2018
- 36% of young adults use social media for news; only 27% use traditional news websites
- What do news publications currently write about and where can they expand?

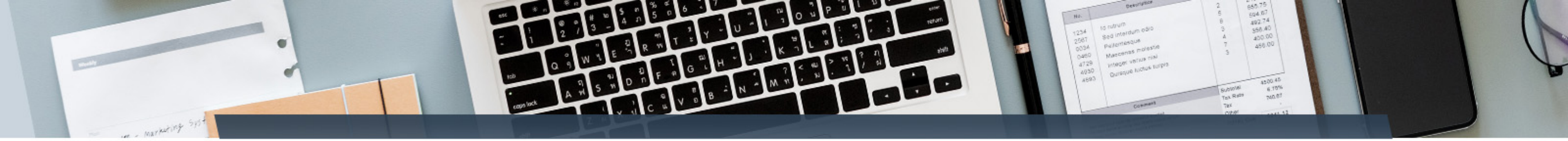
Methodology

- Data: 143,000 articles from 15 news publications on Kaggle
- Topic Modeling with LDA and A/B Testing
- Readability Analysis with spacy-readability
- Primary Packages used:

GENSIM topic modelling for humans · scikit learn · spaCy · SM StatsModels Statistics in Python

Articles by Publication





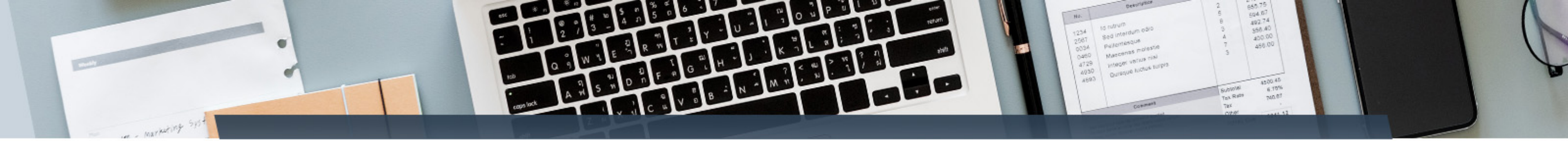
Topics and Categories

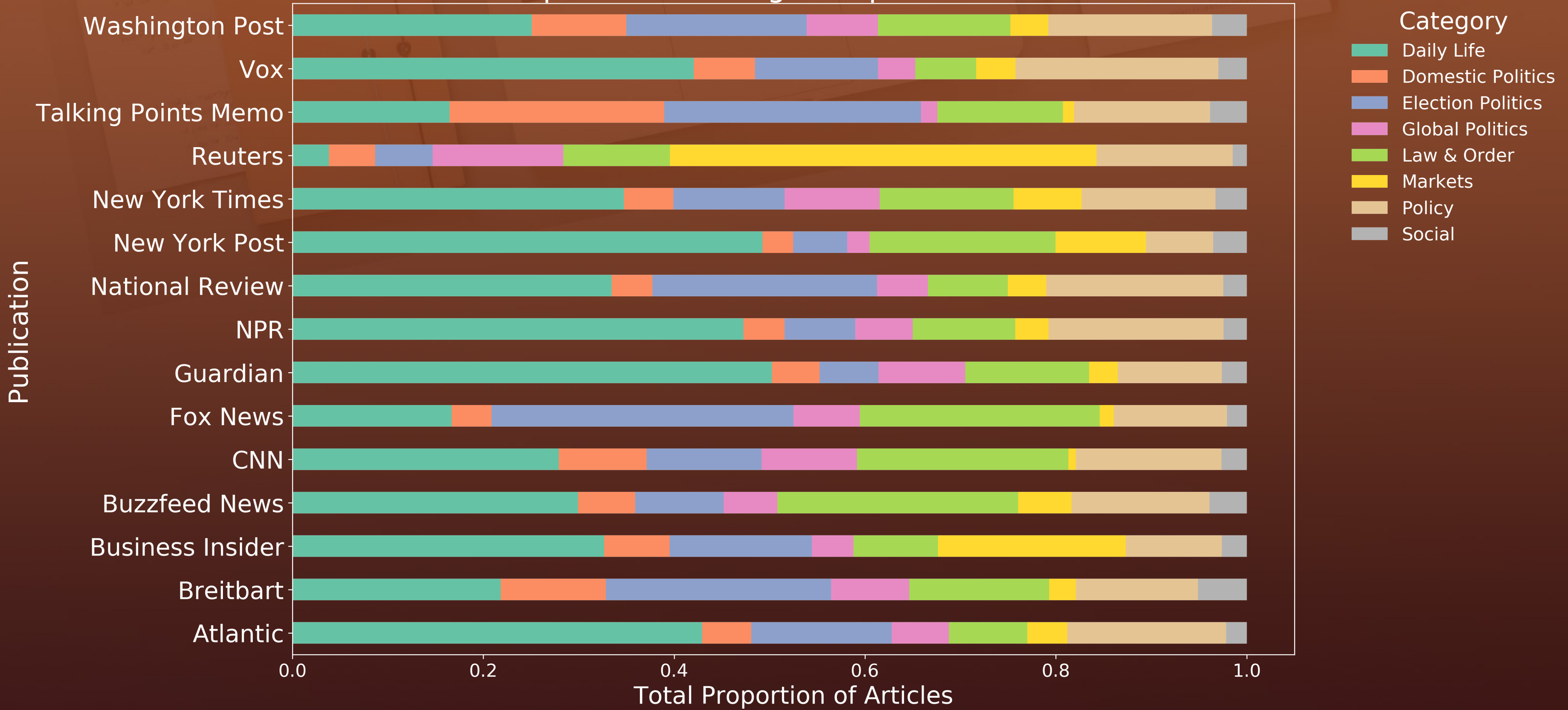
- 24 topics from LDA
  - Most relevant words used
  - pyLDAvis

- 8 primary categories from 24 topics
  - Cosine similarity

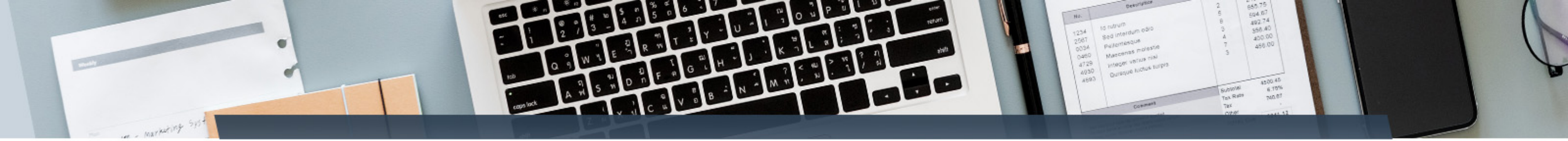
- Examples:
- Topic:
  - Law: court, case, law, justice
  - Police: police officer, black, shooting

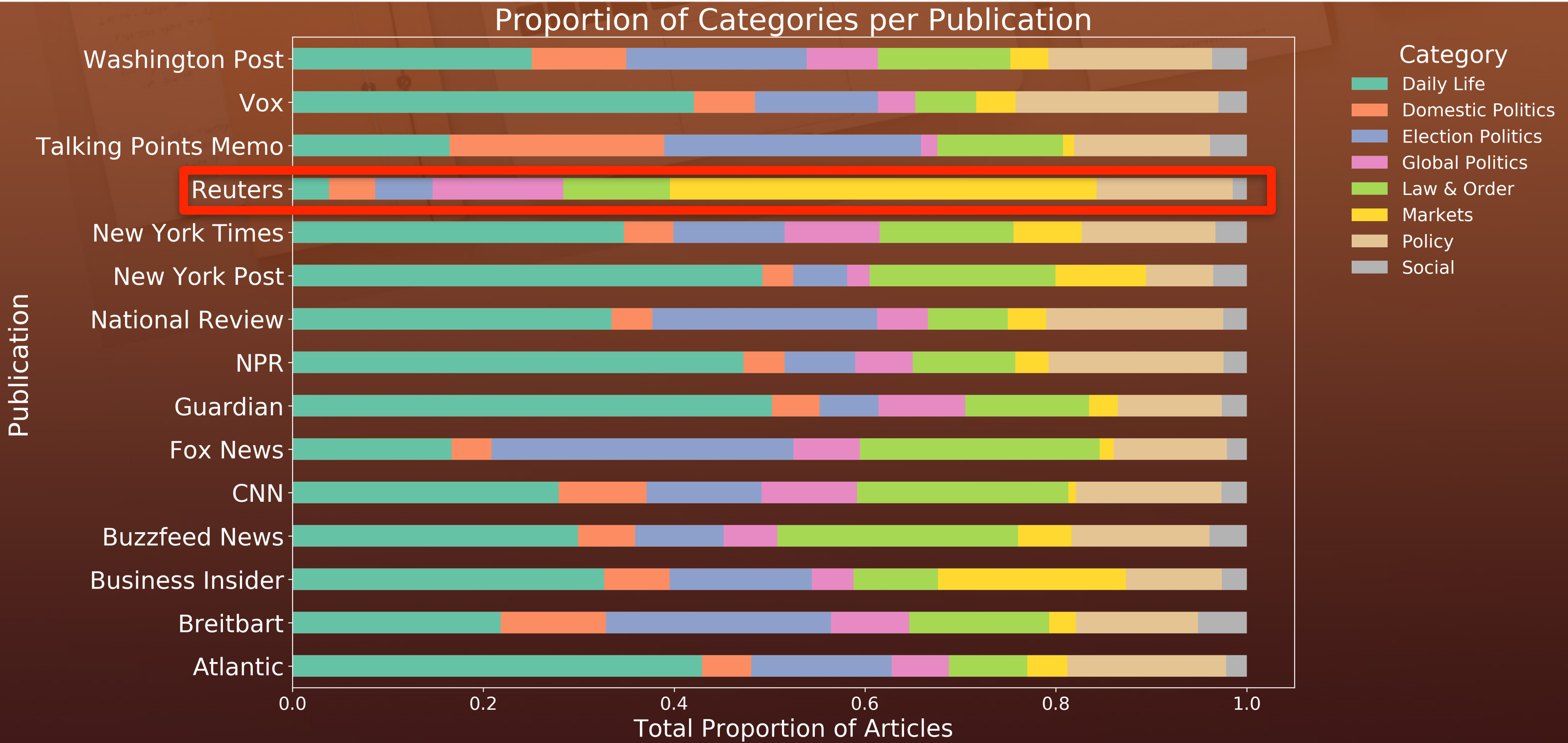
- Categories:
  - Daily Life: sports, lifestyle, social media





Proportion of Categories per Publication

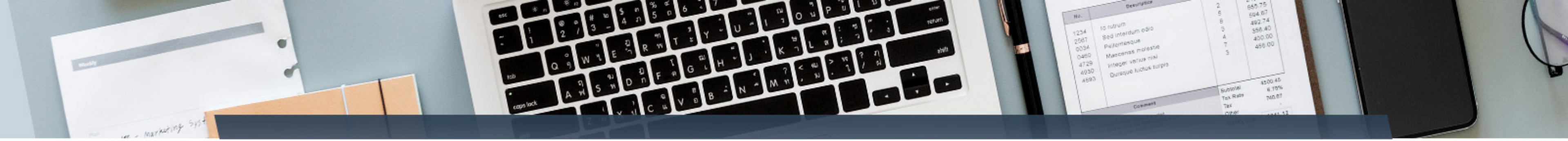



Proportion of Categories per Publication
Publication
Washington Post
Vox
Talking Points Memo
Reuters
New York Times
New York Post
National Review
NPR
Guardian
Fox News
CNN
Buzzfeed News
Business Insider
Breitbart
Atlantic
0.0
0.2
0.4
0.6
0.8
1.0
Total Proportion of Articles
Category
Daily Life
Domestic Politics
Election Politics
Global Politics
Law & Order
Markets
Policy
Social

Categories - A Statistical Approach

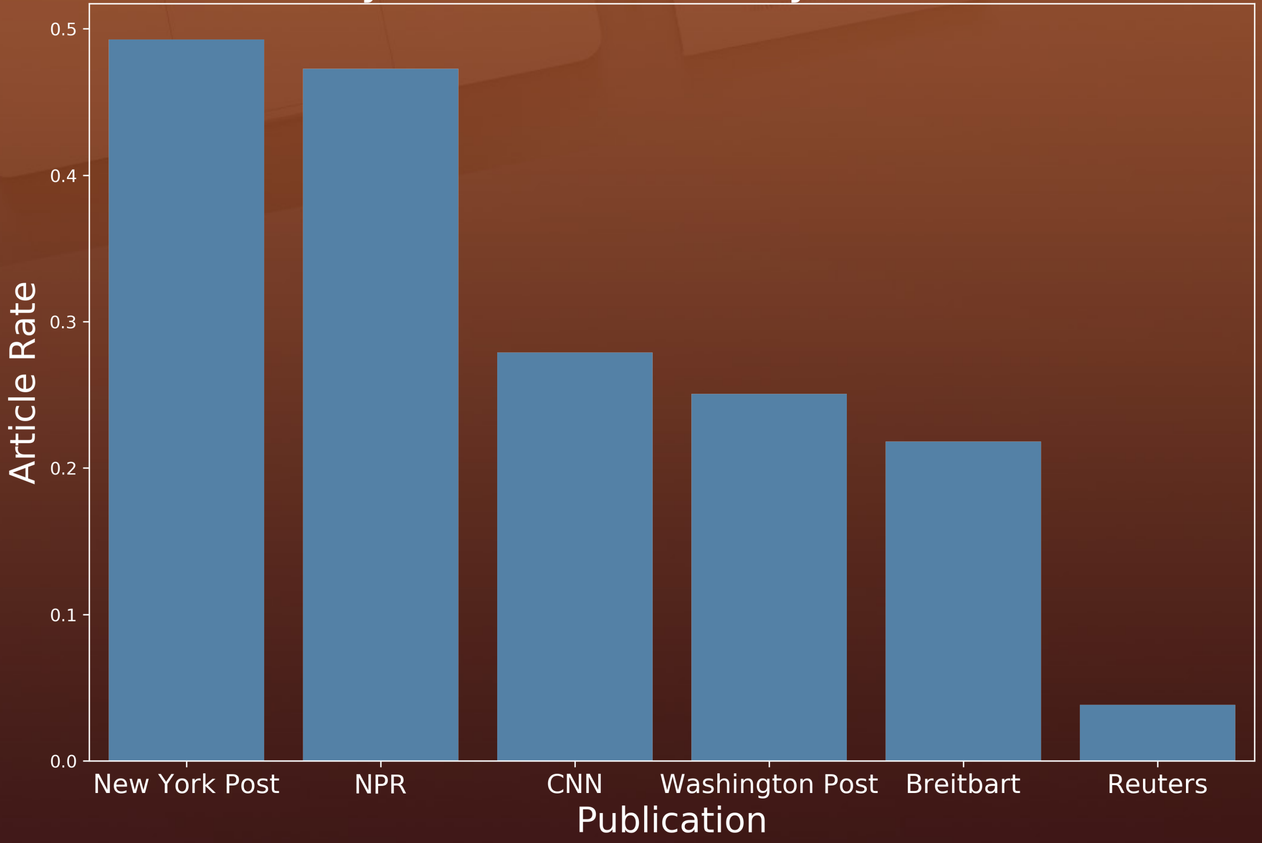
- Multiple hypothesis A/B testing by category
  - Top 6 publications by article count
  - Holm-Bonferroni Correction

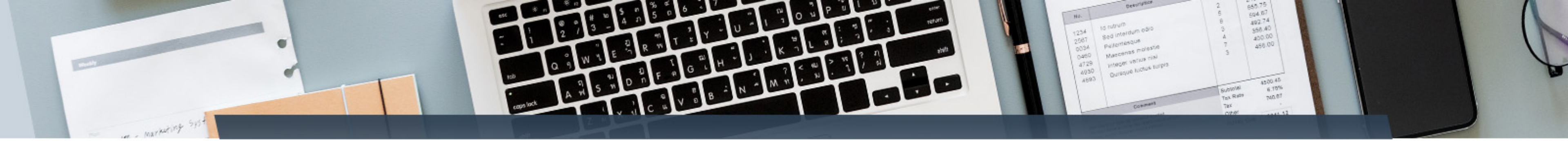
- Determine statistically significant differences in article proportion



Category	Test Result
Daily Life	Pass
Domestic Politics	Fail
Election Politics	Fail
Global Politics	Fail
Law & Order	Fail
Markets	Fail
Policy	Fail
Social	Fail

Daily Life Article Rate by Publication

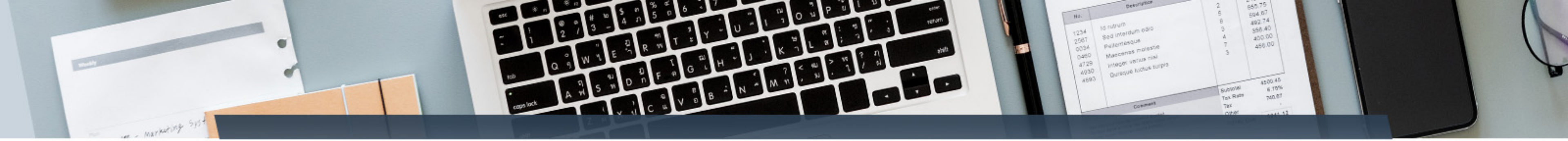


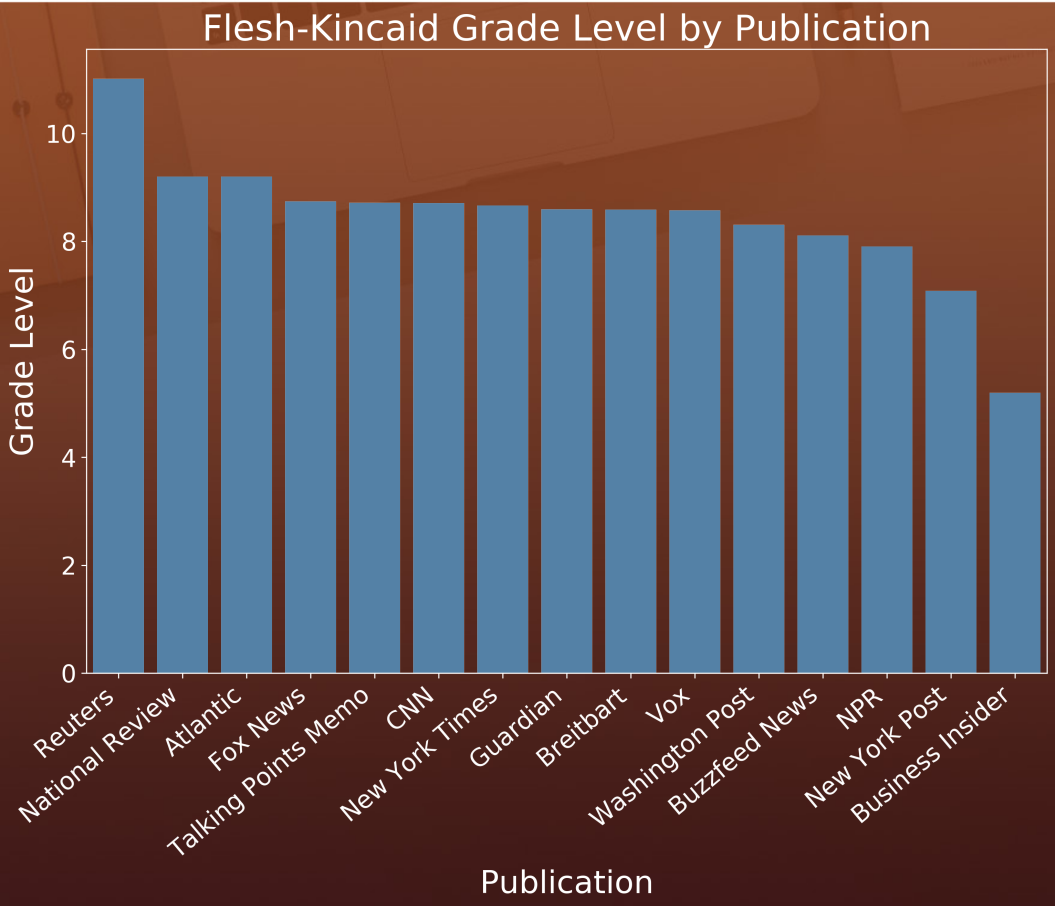


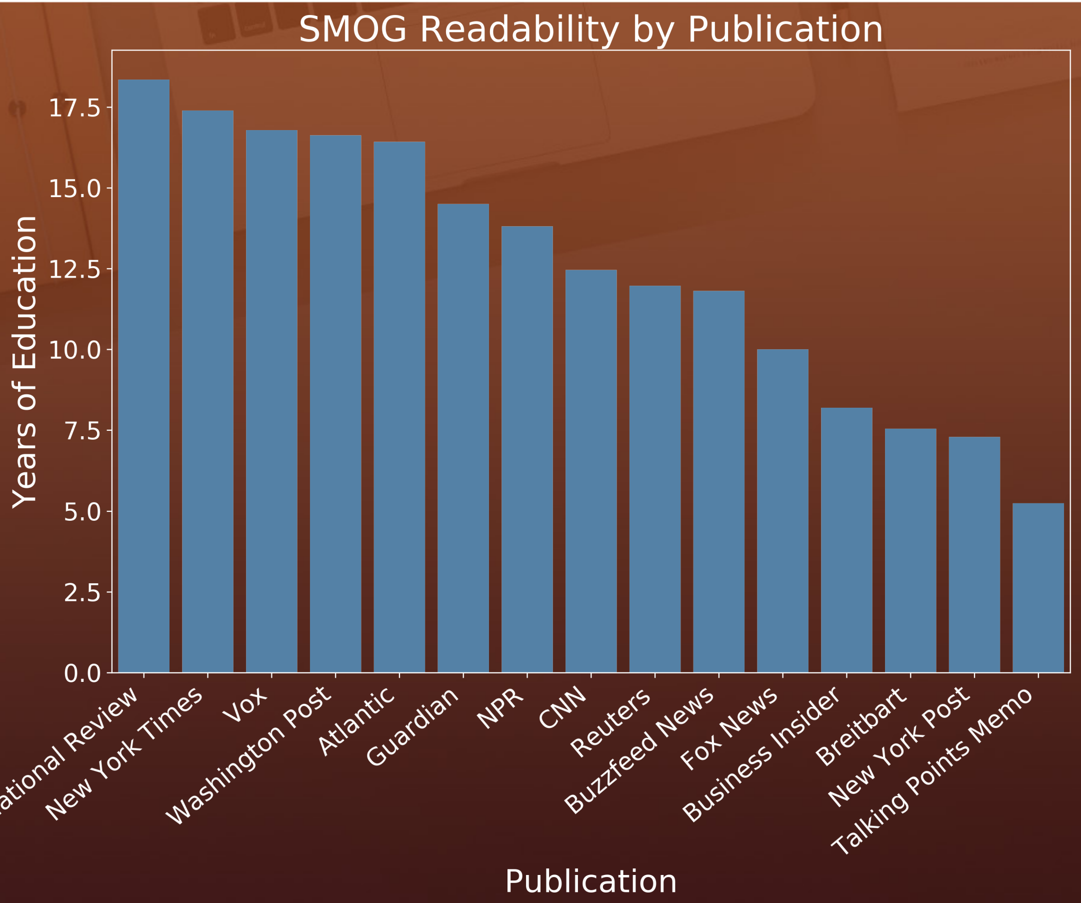
Readability Analysis

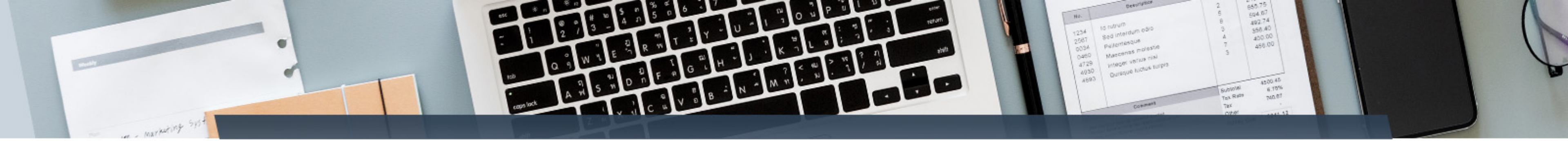
- Examine publications by multiple readability metrics

- Determine if publications focus on different writing levels



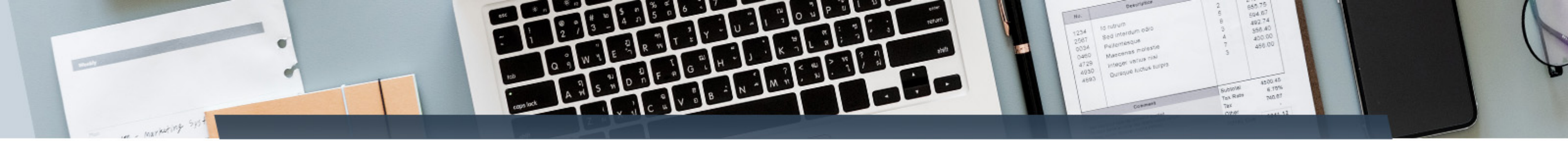

Flesh-Kincaid Grade Level by Publication
Grade Level
0
2
4
6
8
10
Reuters
National Review
Atlantic
Fox News
Talking Points Memo
CNN
New York Times
Guardian
Breitbart
Vox
Washington Post
Buzzfeed News
NPR
New York Post
Business Insider
Publication


SMOG Readability by Publication
Years of Education
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
National Review
New York Times
Vox
Washington Post
Atlantic
Guardian
NPR
CNN
Reuters
Buzzfeed News
Fox News
Business Insider
Breitbart
New York Post
Talking Points Memo
Publication



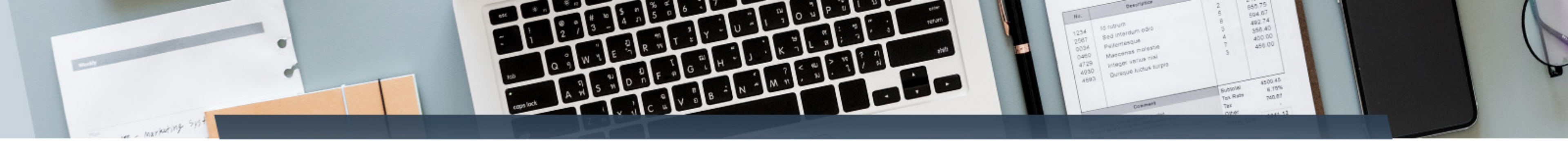
Recommendations

- Daily life is a differentiator:
  - Reuters: more reader-friendly publication with daily life articles
  - New York Post, NPR: consider separate focus on other topics
- Reading level: cater to your audience
  - Breitbart and Talking Points Memo: consider longer/more sophisticated articles or pieces to expand



Additional Topics

- Obtaining more articles across more publications
- Creating a similar article recommender
- Identifying plagiarism between news publications



Thank You!

- Github: https://github.com/mlan93/project_04_NLP
- LinkedIn: https://www.linkedin.com/in/maxlan93/
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