Political discourse on Reddit

Classifying posts and comments from r/politics and r/conservative

Friday, May 5th 2023
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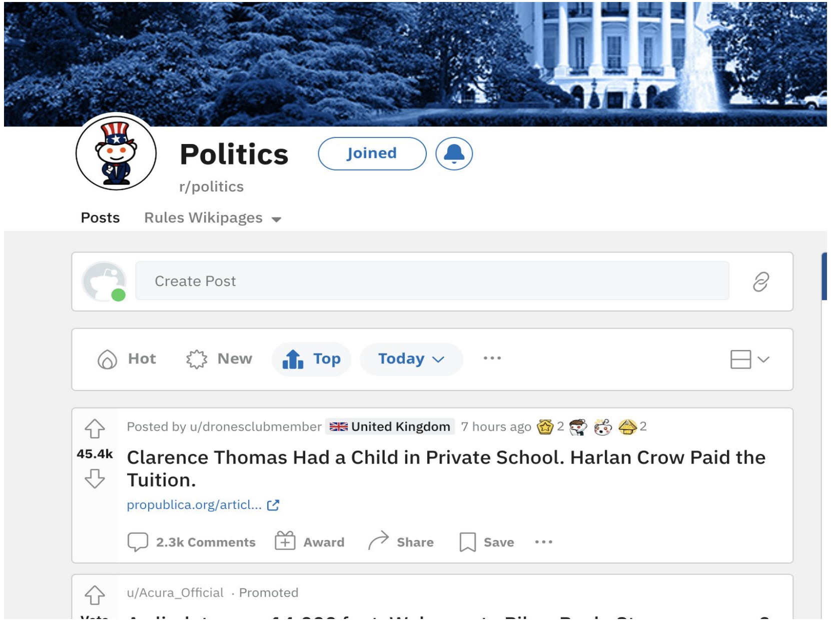
General Assembly
DSIR-0320 Project 3

Problem Statement



Politics

r/politics

Joined

Posts

Rules Wikipages

Create Post

Hot New Top Today ···

Posted by u/dronesclubmember 🇬🇧 United Kingdom 7 hours ago 2 2

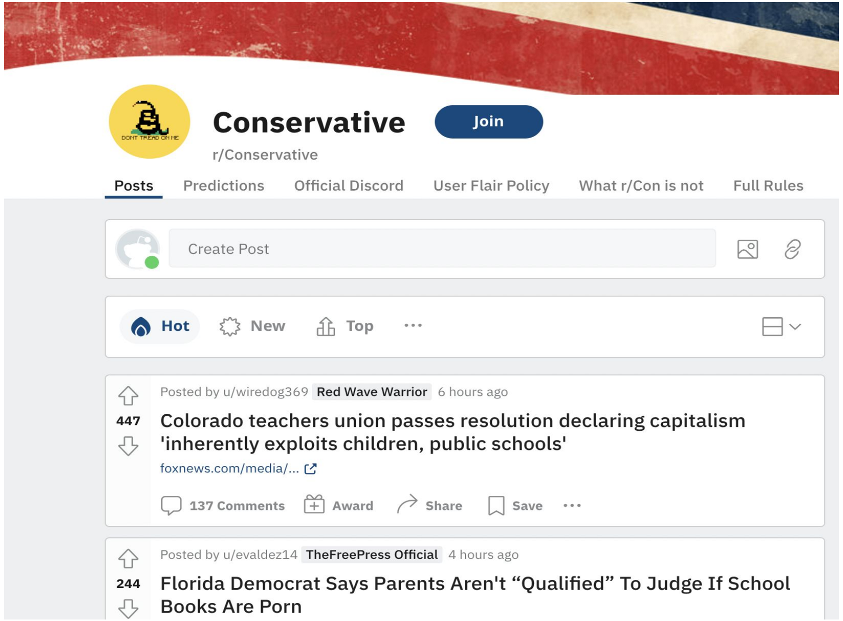
45.4k

Clarence Thomas Had a Child in Private School. Harlan Crow Paid the Tuition.

propublica.org/articl...

2.3k Comments Award Share Save ···

u/Acura_Official · Promoted



Conservative

Join

r/Conservative

Posts Predictions Official Discord User Flair Policy What r/Con is not Full Rules

Create Post

Hot New Top ···

Posted by u/wiredog369 Red Wave Warrior 6 hours ago

447

Colorado teachers union passes resolution declaring capitalism 'inherently exploits children, public schools'

foxnews.com/media/...

137 Comments Award Share Save ···

Posted by u/evaldez14 TheFreePress Official 4 hours ago

244

Florida Democrat Says Parents Aren't “Qualified” To Judge If School Books Are Porn

Classify **posts** and **comments** from **October 2022**
Evaluate performance with **Accuracy**

Data Collection

Collected with Pushshift API

October 6th - November 5th, 2022

1 data request for each day (1000 maximum)

Almost no selftext

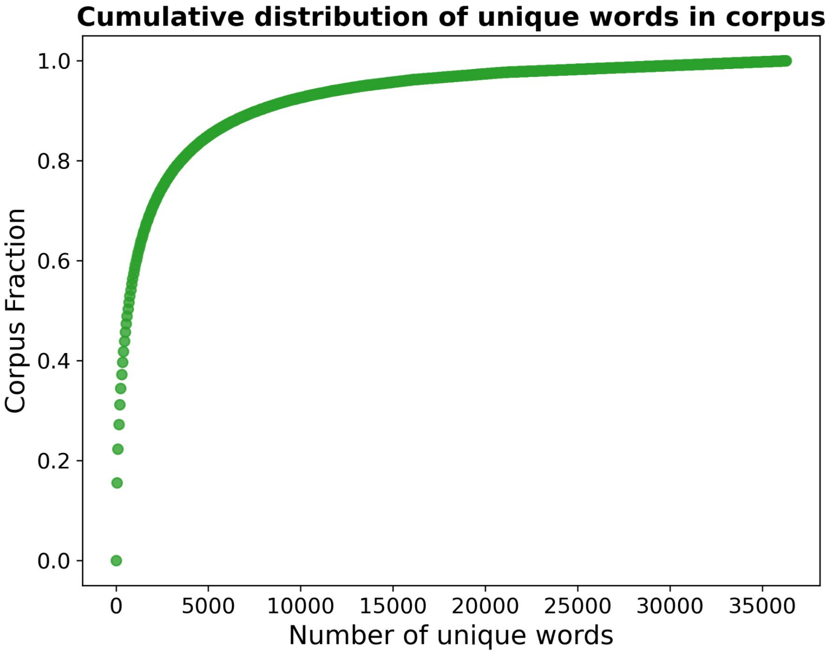
After Cleaning:

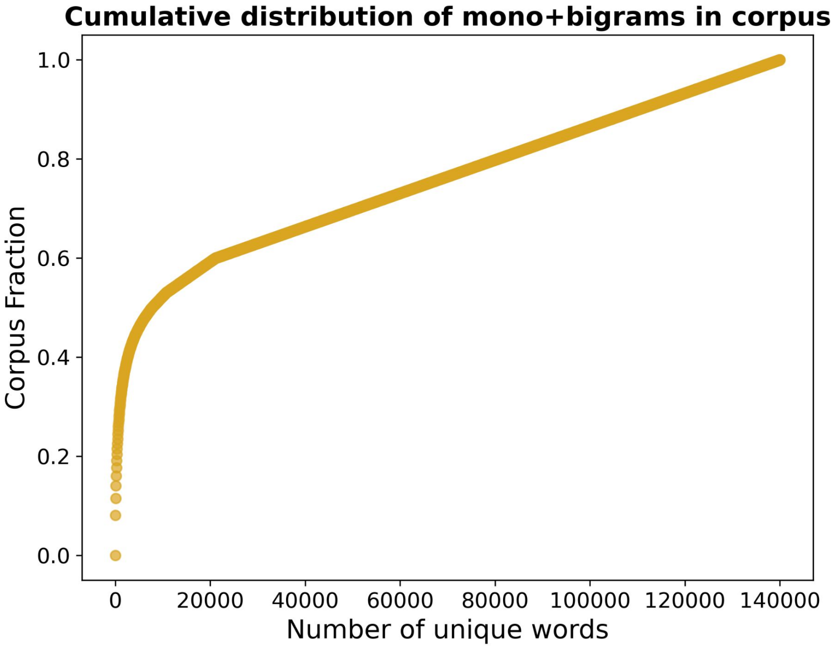
	r/conservative	r/politics	Class balance
Posts	9974	8962	53%/47%
Comments	22097	25874	46%/54%

Cleaning and EDA

Removed:

1) Duplicate/deleted entries
2) Entries with subreddit info or by mods/bots
3) Non-english posts





Model features

Posts:

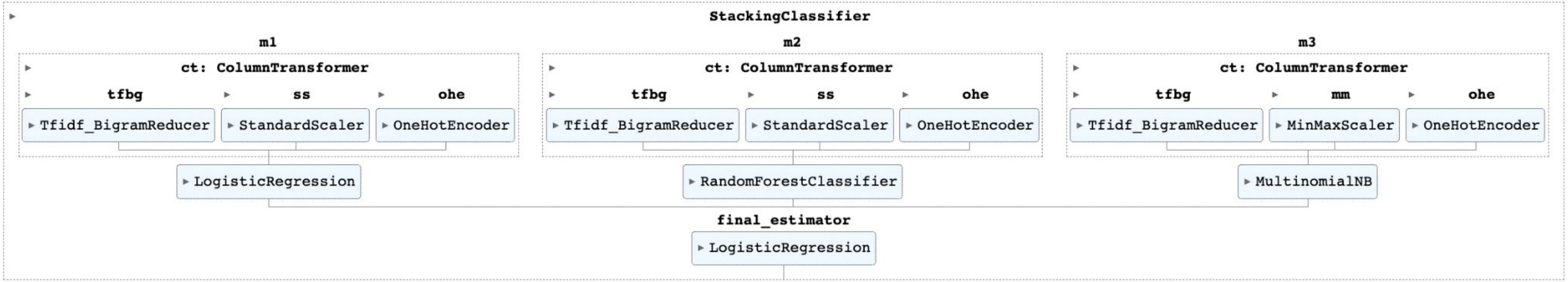
1) Post title **(text - vectorized with TF-IDF)**
2) Number of comments **(numerical)**
3) Domain name **(categorical)**

Comments:

1) Comment **(text - vectorized with TF-IDF)**
2) Score **(numerical)**
3) Word length **(numerical)**
4) Frequent poster yes/no **(categorical)**
5) Sentiment label (RoBERTa) **(categorical)**

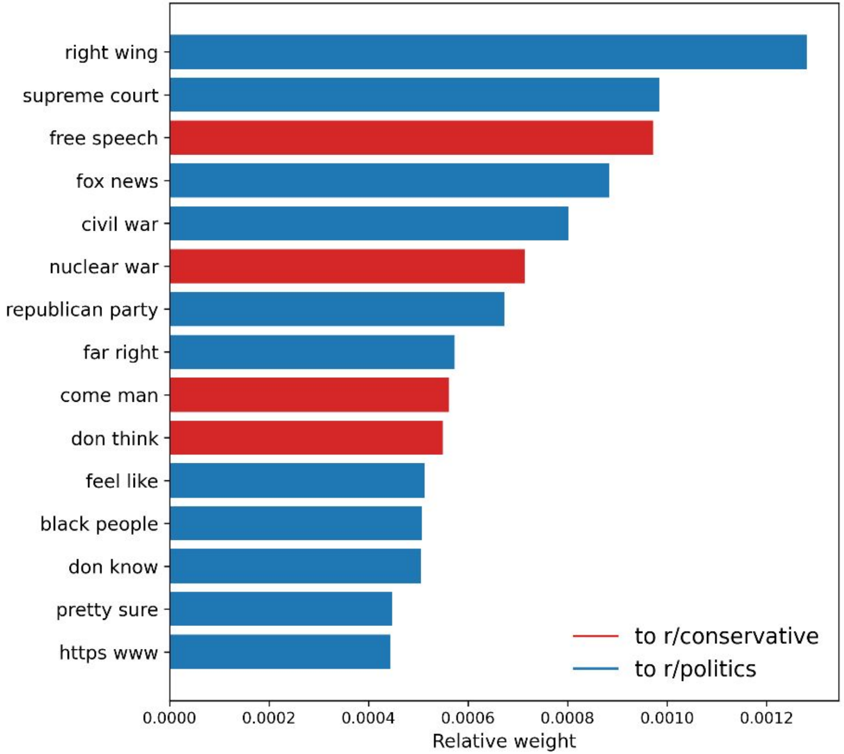
Credit: XKCD, edited by
https://www.reddit.com/r/ProgrammerHumor/comments/9cu51a/shamelessly_stolen_from_xkcd_credit_where_is_due/

Best Model

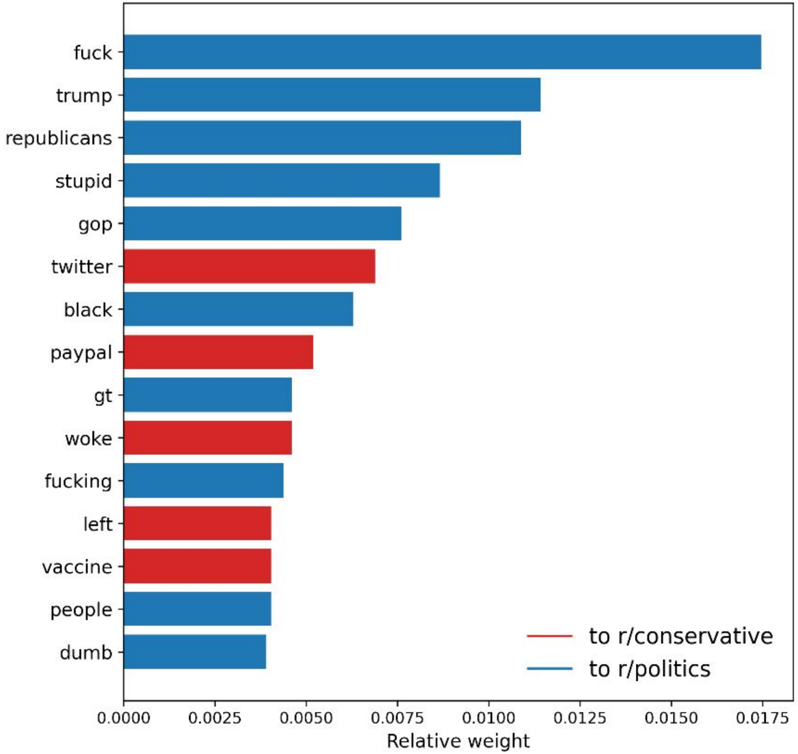


	Training Accuracy	Testing Accuracy
Posts Model	**99.1%**	**88.6%**
Comments Model	**85.3%**	**65.4%**

Insights



Comments: 15 Most important bigrams in Random Forest



Comments: 15 Most important monograms in Random Forest

Conclusions

Classified **posts** and **comments** from r/politics and r/conservative

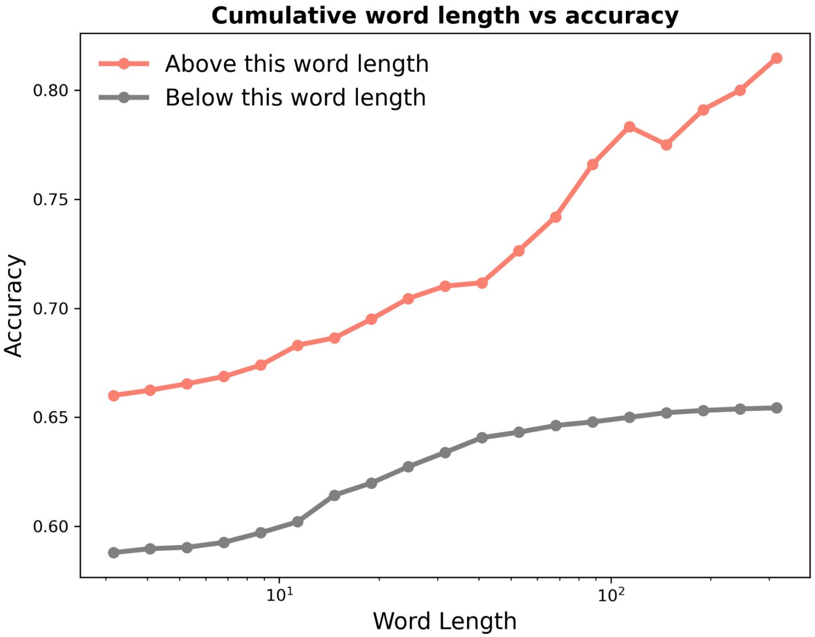
Accuracy: **88.6%** for posts, **65.4%** for comments

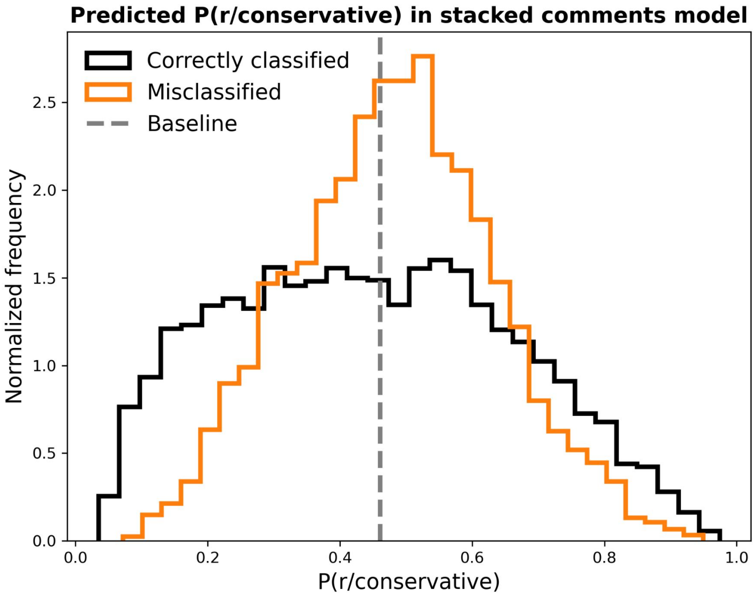
Posts model does well because of domain names

Lots of interesting information about political use of language

Classifying comments is difficult because there is little info

Bonus:Misclassified Comments


Cumulative word length vs accuracy
Above this word length
Below this word length
Accuracy
Word Length
10^1
10^2


Predicted P(r/conservative) in stacked comments model
Correctly classified
Misclassified
Baseline
Normalized frequency
P(r/conservative)