



# The Language of Media Bias

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A look into what  
words determine  
media bias

Dave McKinley

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# Business Overview

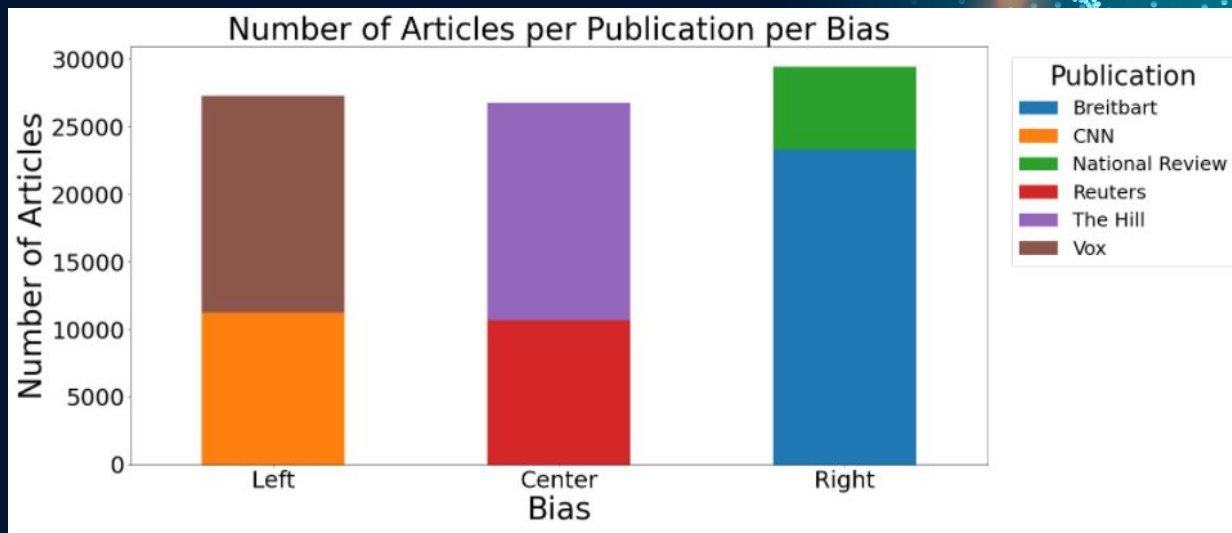
- 53% use social media for news
- Echo Chambers dominate  
Facebook and Twitter

## Goals

- Improve AllSides Media Bias  
Ratings Systems
  - Accurately classify media bias
  - Important words

# Data Understanding

- 3 classes
- 6 media outlets
- 83,000+ articles



# Data Preparation

[illegible]

## Lowercase

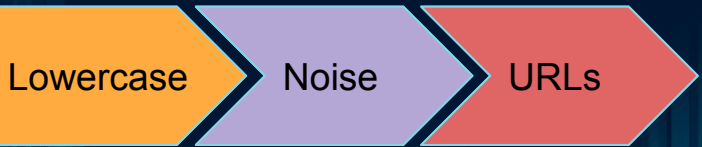


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 ential candidate mike huckabee about a video that trump aide daniel scavino posted on  
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 h this senate who also has two children that something untoward was going on. there going on.  
 e point, are you just ashamed? this is the trump campaign sending it out." huckabee: "repeated by  
 named of is the entire process that it's gotten to where it's gutter politics." she responded "i  
 and act like they're doing nothing wrong nothing wrong in this entire political process. the  
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 at of melania trump posing nude in a magazine cruz's campaign hit back and the candidate  
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## Noise

# Data Preparation

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. asks trump campaign adviser: aren't you ashamed that trump campaign is pushing out a tabloid report? \xa0 cnn anchor jake tapper went after an adviser to donald trumpdonald john trumppossible gop challenger says trump doesn't deserve reelection, but would vote for him over democrat o'rourke: trump driving global, u.s. economy into recession manchin: trump has 'golden opportunity' on gun reforms more on tuesday over the campaign's fueling of rumors about ted cruzrafael (ted) edward cruztrump moves forward with f-16 sale to taiwan opposed by china the hill's campaign report: battle for senate begins to take shape o'rourke says he will not 'in any scenario' run for senate more having an extramarital affair. tapper pressed paraded us army budgeterendof fightfor presidentialelectionteamikedatecableuhahabea, videothatthe northatlantictreatyorganisationsaidit postedon twitter implying that trump and ted cruz staffer were having an affairhaving a sexual affairnyc daily editorial tweete editorial wrote videobasuggestedsuggesting that pentance created with two childrenwith ahold childreameansethatsonarriedseraladertwochildsoenas twachildnothingthat something got toward the segising article evidence that it happened tharic happenode iproia, are you suspicious, have yof? just is a hatched pbaris phier sending gritpaugh looking at a response maybe responding by attacking the craig of a paing from acting "wastly." in what i'm ashamed entire exercise, phatless globe it's gotten rid's better its justice," solairespohedespohredit's think it's designed singes forth for the campaign to go to court and act like they're doing nothing wrong in this political process they're of the filthy tried aadies test paipaigust bethe trump and cruz have been feeding since last week where trump attacked cruz's wife wife and accused rival of being involved in a super-pac ad that that included an image of melania trump posing nude in a magazine. cruz's campaign hit back, and the candidates traded barbs over the weekend on the sunday political talk shows.\xa0 view the discussion thread. the hill 1625 k street, nw suite 900 washington dc 20006 | 202-628-8500 tel | 202-628-8503 fax the contents of this site are ©2019 capitol hill publishing corp., a subsidiary of news communications, inc."







The Hill Articles

Numbers

Common Words & Punctuation

The Hill Articles

Numbers

Common Words & Punctuation



# Data Preparation

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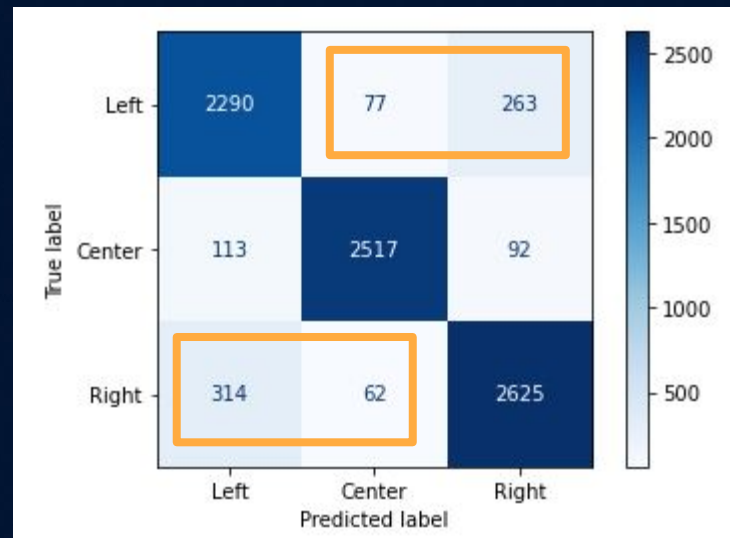


# Data Preparation

".@jaketapper asks Trump campaign adviser: Aren't you ashamed that Trump campaign is pushing out a tabloid report? <https://t.co/5CwCusrMv7> \xa0 asks trump campaign adviser ashamed trump campaign pushing tabloid report anchor Jake Tapper went adviser donald trumpdonald john trumppossible CNN anchor Jake Tapper went after an adviser to Donald TrumpDonald John Trump possible GOP challenger says Trump doesn't deserve reelection, but would vote for him over Democrat O'Rourke. Trump driving global, U.S. economy into recession Manchin. Trump has golden opportunity gun reform, Tuesday campaign fueling rumors Ted CruzRafael Ted Edward CruzTrump moves forward sale Taiwan oppoos China hill campaign report battle senate begins take shape rourke says scenario run senate extramarital affair tapper pressed Sarah Huckabee daughter former presidential candidate Mike Huckabee video trump aide Daniel Scavino posted twitter implying cruz former staffer affair social media editor tweeted crazy video suggesting amanda carpenter married two children married senator also two children something untoward going actual evidence happened mean point ashamed that Trump aide Daniel Scavino posted on Twitter implying that Cruz and a former staffer were having an affair. Your social media editor tweeted out a trump campaign sending huckabee responded attacking cruz campaign nasty ashamed entire process gotten gutter politics responded think crazy video, suggesting that Amanda Carpenter, who's married with two children, and this married senator who also has two children — that something disingenuous cruz campaign come act like done nothing wrong entire political process one dirtiest nastiest campaign trump cruz feuding since last week untoward was going on. There is no actual evidence that it happened. I mean at some point, are you just ashamed? This is the Trump campaign trump attacked cruz wife accused rival involved super pac ad included image melania trump posing nude magazine cruz campaign hit back candidate sending it out. Huckabee responded by attacking the Cruz campaign for being "nasty." What I'm ashamed of is the entire process, that it's gotten to traded barbs weekend sunday political talk show where it's gutter politics," she responded. "I think it's very disingenuous for the Cruz campaign to come out and act like they've done nothing wrong in this entire political process. They're one of the dirtiest and nastiest campaigns out there." Trump and Cruz have been feuding since last week, when Trump attacked Cruz's wife and accused his rival of being involved in a super-PAC ad that that included an image of Melania Trump posing nude in a magazine. Cruz's campaign hit back, and the candidates traded barbs over the weekend on the Sunday political talk shows.\xa0 View the discussion thread. The Hill 1625 K Street, NW Suite 900 Washington DC 20006 | 202-628-8500 tel | 202-628-8503 fax The contents of this site are ©2019 Capitol Hill Publishing Corp., a subsidiary of News Communications, Inc."

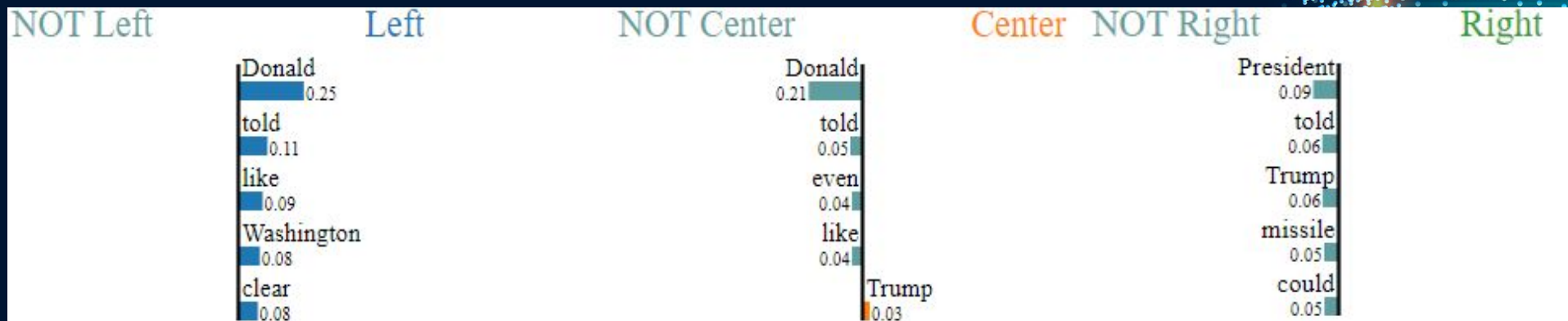
# Model Results

- 88% Accuracy





# LIME Explainer



## Text with highlighted words

(CNN) A failed **missile** launch in North Korea Sunday has brought renewed attention to reports that the United States is trying to degrade North Korea's **missile** capabilities via hacking. It's unclear if the US interfered with this specific test, but the tactic is actively being pursued by the US military, according to public statements and Congressional testimony by current and former members of the armed forces. "There is a very strong belief that the US through cyber methods has been successful on several occasions in interrupting these sorts of tests and making them fail," former British Foreign Secretary Malcolm Rifkind **told** the BBC. Rifkind's comments come on the heels of a report in The New York Times last month saying US President **Donald** Trump inherited a cyberwar on North Korea in the hope of sabotaging its **missile** tests. "It's clear United States policy to develop the cyber capability to disable enemy ballistic missiles," said Greg Austin, a professor at the Australian Centre for Cyber Security at the University of New South Wales. It's been touted as a measure that could be used in conjunction with the traditional ballistic **missile** defense systems, which cost hundreds of millions of dollars. How to do it, Retired Adm. Archer Macy said at a 2015 talk on **missile** defense the Defense Department was trying to develop technologies to prevent missiles from launching, mess with their flight paths or navigation systems and even destroy their warheads. "We cannot afford to build enough interceptors to engage the quantity of threat missiles which can be presented to us. And even if we could, we can never expect a 100% probability of defeating all of them regardless of the techniques used," Macy said. As far as what to hack, "there's lots of ways in, which makes it very hard for the defender to know what's being attacked and what's not

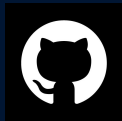
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## Next Steps

- More robust data set
- Other explainers
- Language Transformers
- Topic Analysis
- Develop an app



# Thank you, Questions?



<https://github.com/DaveMcKinley/MediaBiasAnalysis>



<https://www.linkedin.com/in/dave--mckinley/>

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# Sources

1. <https://www.oxfordlearnersdictionaries.com/us/definition/english/echo-chamber>
2. <https://www.pewresearch.org/journalism/2021/01/12/news-use-across-social-media-platforms-in-2020/>,
3. <https://www.pnas.org/content/118/9/e2023301118>
4. <https://www.scientificamerican.com/article/why-social-media-makes-us-more-polarized-and-how-to-fix-it/>