

The background is a dark blue gradient. It features numerous thin, vertical, golden-yellow lines of varying lengths and thicknesses, creating a digital or data-like effect. A prominent horizontal band of bright, glowing golden-yellow light stretches across the lower half of the image, with some vertical lines intersecting it.

Analysis of sentiment disparity toward Democrats and Republicans across media-linked political tweets

The Carter Center Group 2
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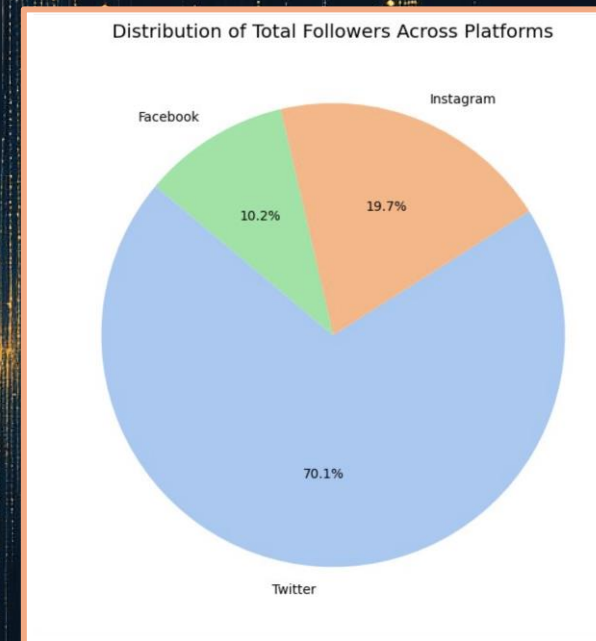
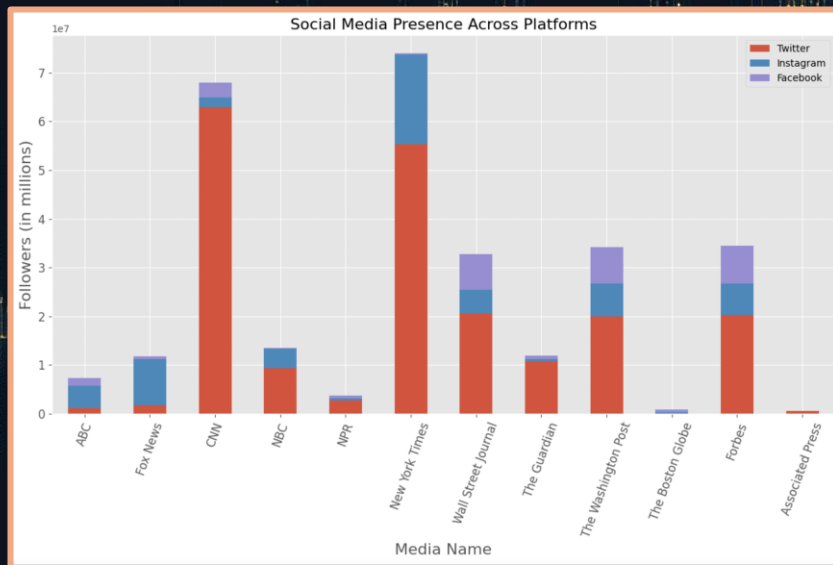
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Project Background

Research Question: Is there a significant sentiment disparity toward Democrats and Republicans across media-linked political tweets?

Research Motivation: Due to the recent 2024 Election and access to data related to the election and its media coverage via Junkipedia, we believed that this would be a question we could reasonably approach. We opted to focus on Twitter/X as this is generally where the news platforms we chose to analyze had the largest audience.



Data and Programming

Data Sources: We leveraged Junkipedia to collect data from CNN, Fox News, NBC News, The Washington Post and other relevant news media outlets.

Technologies / Methods: We annotated the data by hand, adhering to certain annotation standards and then used the prepped data to train a "RoBERTa" model to analyze said data.



News Sources Used

RoBERTa Training Parameters

- **output_dir:** ./results/post_body - Directory to save the model and checkpoints.
- **eval_strategy:** epoch - Evaluates the model at the end of each epoch.
- **learning_rate:** 1e-5 - Learning rate for the optimizer.
- **per_device_train_batch_size:** 16 - Batch size per device (e.g., GPU) for training.
- **num_train_epochs:** 15 - Total number of training epochs.
- **weight_decay:** 0.01 - Weight decay to prevent overfitting.
- **save_strategy:** epoch - Saves checkpoints at the end of each epoch.
- **logging_dir:** ./logs/post_body - Directory for logs.
- **logging_steps:** 10 - Logs every 10 steps during training.
- **save_total_limit:** 1 - Retains only the most recent checkpoint.
- **load_best_model_at_end:** True - Loads the best model at the end of training.

RoBERTa Training Parameters

Data and Programming

Annotation Standards: Annotator Guidelines can be found [here](#)

- Filtered the posts according to specific keywords.
- Each annotator was responsible for annotating 200 posts (with 50 of these posts overlapping with another annotator)
- Each annotator labeled the text contained in the Tweet as well as the article to which the Tweet linked as "yes" or "no" for being pro-republican, pro-democrats, con-republican, con-democrats, neither republican nor democrats, and not-relevant

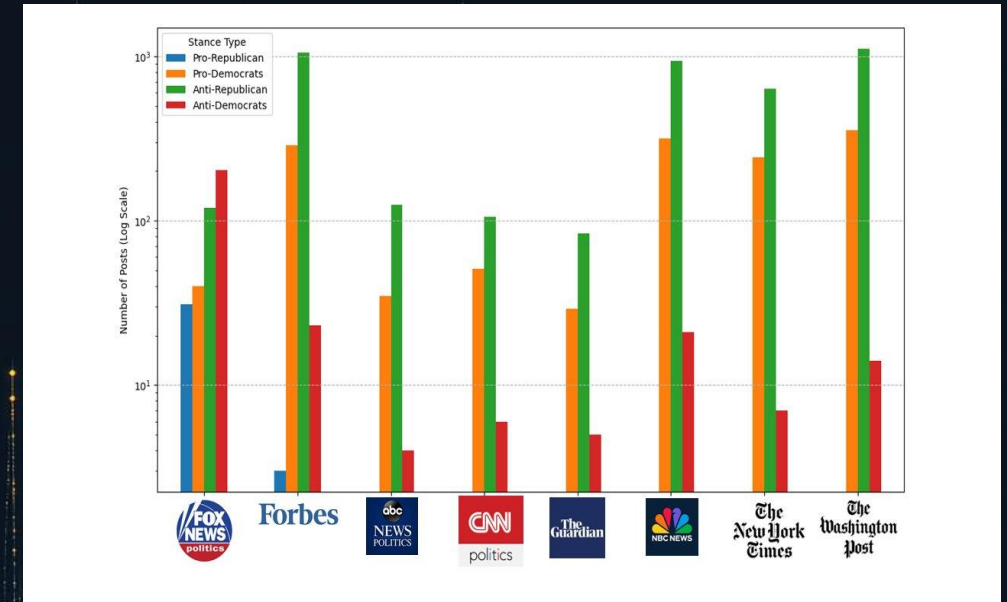
1	2	PostId	PostUrl	PostEngagement	Platform	ChannelID	ChannelName	ChannelUid	ChannelUrl	ChannelEngagement	post_body_text	FOR POST BODY TEXT ONLY					
												pro-republican	pro-democrats	con-republican	con-democrats	neither republican nor democrats	not-relevant
3	351729417	https://twitter.c			Twitter	6962032	NBC News	blank_for_now	blank_for_now	(*follower.cou	Tim Sheehy, a						YES
4	351738216	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	In this issue of						YES
5	351738263	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	Former Pres.					YES	
6	351699684	https://twitter.c			Twitter	6756282	The	blank_for_now	blank_for_now	(*follower.cou	Podcaster Joe	YES					
7	351731374	https://twitter.c			Twitter	6674438	The New York	blank_for_now	blank_for_now	(*follower.cou	Kamala Harris and					YES	
8	351733104	https://twitter.c			Twitter	6649103	Guardian news	blank_for_now	blank_for_now	(*follower.cou	Harris expected to		YES	YES			
9	351730630	https://twitter.c			Twitter	8553657	Fox News	blank_for_now	blank_for_now	(*follower.cou	Trump, Harris dead					YES	
10	351738394	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	How Donald Trump	YES					
11	351729642	https://twitter.c			Twitter	6962032	NBC News	blank_for_now	blank_for_now	(*follower.cou	"Big lie" 2.0: How			YES			
12	351729659	https://twitter.c			Twitter	6962032	NBC News	blank_for_now	blank_for_now	(*follower.cou	President Biden					YES	
13	351699703	https://twitter.c			Twitter	6756282	The	blank_for_now	blank_for_now	(*follower.cou	Vice President					YES	
14	351738462	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	Biden Proposes		YES				
15	351733131	https://twitter.c			Twitter	6649103	Guardian news	blank_for_now	blank_for_now	(*follower.cou	Harris holds rally		YES				
16	351731411	https://twitter.c			Twitter	6674438	The New York	blank_for_now	blank_for_now	(*follower.cou	In Opinion			YES			
17	351738566	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	Bill Gates Donated		YES				
18	351729757	https://twitter.c			Twitter	6962032	NBC News	blank_for_now	blank_for_now	(*follower.cou	At least a dozen					YES	
19	351592682	https://twitter.c			Twitter	6674438	The New York	blank_for_now	blank_for_now	(*follower.cou	Breaking News:					YES	
20	351730660	https://twitter.c			Twitter	8553657	Fox News	blank_for_now	blank_for_now	(*follower.cou	Vulnerable NY			YES			
21	351738625	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	What McDonald's					YES	
22	351738866	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	Voting On A					YES	
23	351636368	https://twitter.c			Twitter	6817033	ABC News	blank_for_now	blank_for_now	(*follower.cou	Half the country			YES			
24	351731474	https://twitter.c			Twitter	6674438	The New York	blank_for_now	blank_for_now	(*follower.cou	Here's where					YES	
25	351636382	https://twitter.c			Twitter	6817033	ABC News	blank_for_now	blank_for_now	(*follower.cou	NEW: Half the			YES			
26	351731513	https://twitter.c			Twitter	6674438	The New York	blank_for_now	blank_for_now	(*follower.cou	If re-elected,			YES			
27	351733242	https://twitter.c			Twitter	6649103	Guardian news	blank_for_now	blank_for_now	(*follower.cou	Missouri	YES					
28	351739248	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	Harris Continued		YES				
29	351730679	https://twitter.c			Twitter	8553657	Fox News	blank_for_now	blank_for_now	(*follower.cou	Delaware launches					YES	
30	351739292	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	See our updated					YES	
31	351739455	https://twitter.c			Twitter	6612253	Forbes	blank_for_now	blank_for_now	(*follower.cou	The growing	YES					

Example of an annotator's labeling spreadsheet for Tweets (pictured above) and articles (pictured to the right).

AD	AE	AF	AG	AH	AI	AJ	AK	AL
team_c2_extra cted_url	extracted_article_content	FOR EXTRACTED ARTICLES ONLY						extraction_method
		pro-republican	pro-democrats	con-republican	con-democrats	neither republican nor democrats	not-relevant	
https://t.co/gLq	Heading:						YES	newspaper3k
https://t.co/e2	Heading:						YES	BeautifulSoup
https://t.co/8Z	Heading:					YES		BeautifulSoup
https://t.co/T8t	Heading:			YES				newspaper3k
https://t.co/yV0	Heading:					YES		newspaper3k
https://t.co/Ny	Heading:		YES					newspaper3k
https://t.co/uEi	Heading:	YES			YES			newspaper3k
https://t.co/rR9	Heading:	YES						BeautifulSoup
https://t.co/1zY	Heading:			YES				newspaper3k
https://t.co/4uz	Heading:				YES			newspaper3k
https://t.co/lds	Heading:					YES		newspaper3k
https://t.co/5lg	Heading:					YES		BeautifulSoup
https://t.co/tt2	Heading:		YES					newspaper3k
https://t.co/pzn	Heading:			YES				newspaper3k
https://t.co/vk	Heading:		YES					BeautifulSoup
https://t.co/9jc	Heading:					YES		newspaper3k
https://t.co/XD	Heading:					YES		newspaper3k
https://t.co/XH	Heading:				YES			newspaper3k
https://t.co/Y9	Heading:	YES	YES					BeautifulSoup
https://t.co/Ip3	Heading:					YES		BeautifulSoup
https://t.co/zsl	Heading:			YES	YES			newspaper3k
https://t.co/le	Heading:		YES	YES				newspaper3k
https://t.co/M	Heading:			YES	YES			newspaper3k
https://t.co/90	Heading:			YES				newspaper3k
https://t.co/jKa	Heading:			YES				newspaper3k
https://t.co/3Z	Heading:		YES					BeautifulSoup
https://t.co/tH	Heading:					YES		newspaper3k
https://t.co/jGA	Heading:					YES		BeautifulSoup
https://t.co/vFX	Heading:					YES		BeautifulSoup

Findings and Takeaways

- There appeared to be a significant sentiment disparity between Democrats and Republicans across the political media sources being analyzed. The Pro-Democrat sentiments outnumber the Pro-Republican sentiments.
- The research helps understand media bias and polarization and how it impacts public perception.
- Expect that if expanded to include more varied media sources, maybe there would be more Pro-Republican sentiment (only Fox News has a relatively significant amount and model only identified 2/8 sources to have content identified as Pro-Republican).
- On average, the media outlets we chose are more likely to release Anti-Republican content as opposed to Anti-Democratic content
- Shows that the media sources we included are less likely to be critical of Democrats opposed to Republicans > i.e. our sources are more liberally oriented?



Within the context of the 2024 Election and its results, we hypothesized that the increased anti-Republican rhetoric circulating through the media, amidst other factors, had an effect opposite to the one expected. We consider that potentially, this media may have emboldened party members and their stances, leading to higher voter turn outs, increased party related marketing , etc.

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Thank you!

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