

Comparing Social-cyber Maneuvers Across Platforms and News Types During the 2022 U.S. Midterm Election

Christine Sowa Lepird¹[0000-0002-9350-5627] and Kathleen M. Carley¹[0000-0002-6356-0238]

Carnegie Mellon University, Pittsburgh PA 15213, USA csowa@andrew.cmu.edu
<https://www.casos.cs.cmu.edu/>

Abstract. We utilize the BEND framework to categorize social-cyber maneuvers and highlight similarities and differences in how different news types - Real News, Local News, Low Credibility News, and Pink Slime - are shared across social media platforms (Facebook and Reddit) to discuss the 2022 U.S. Midterm Election. This research finds that maneuvers used, particularly on Facebook Pages, align by credibility of news type rather than scope. Low Credibility and Pink Slime News convey their messaging using more incendiary yet superficial language while Real and Local News are more inclined to share objective, in-depth reporting.

Keywords: BEND Maneuvers · Pink Slime · Elections · Multi Platform.

1 Introduction

In our current digital era, news is crafted for and shared via social media as opposed to traditional print medium. Almost half (48%) of the adults in the US agree that they regularly get news from social media platforms, with the largest proportion of news consumption coming from Twitter, Facebook and Reddit[17]. The vast majority (70%) of Americans report getting their news from Facebook [10]; however, readers should beware of the sources shared on social media as 15% of referrals to fake news sites are coming from Facebook [12]. Furthermore, smaller communities, like the subreddit for supporters of President Donald Trump have an outsized influence on larger, external communities [18].

Furthermore, an emerging, understudied threat trying to influence elections is Pink Slime - over a thousand mass-produced, partisan news masquerading as "local news" in an attempt to influence elections [1]. Understanding how this news type utilized information operations on social media is important as 17.7% of visits to these sites are referred by Facebook and 3.2% are through Twitter; 3.7% of voting-age Americans visited at least one pink slime site during the 2020 U.S. Presidential election [16].

Previous research from [14] defines the big four news types as the following - Real News which is high credibility and national in scope; Local News which is high credibility and regional in scope; Low Credibility which is low credibility

and national in scope; and Pink Slime which is low credibility and regional in scope. [14] utilizes social network analysis to see how these news types are shared differently on different platforms (Facebook, Reddit, and Twitter), but it fails to take into account the narrative elements of the posts themselves. This research uses the same dataset as that paper and includes these narrative elements to blend the narrative and network features via BEND.

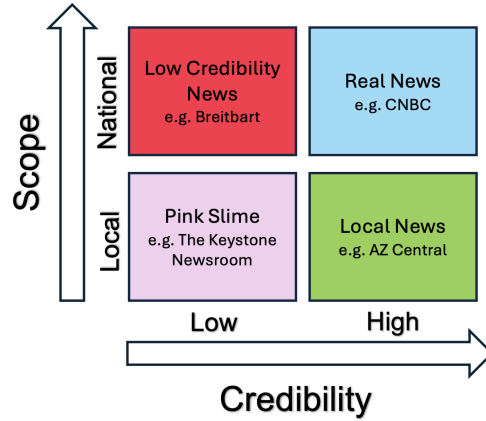


Fig. 1. The four major news types by scope and credibility, including examples of news outlets. The colors corresponding to the news type are used throughout this paper’s visuals.

This paper highlights the differences between how different news types are shared differently both within a single social media platform but also across the three platforms. It examines the maneuvers of these news types by implementing the BEND Framework to compare the tactics of these sites with varying scope and credibility across a single topic (the 2022 Midterm Elections where 107.7 million Americans voters elected 36 governors, 35 senators, and 435 representatives [9]).

2 Background

The BEND framework [6] is a methodology for assigning social media posts performing information operations campaigns into 16 maneuvers based on narratives (using the text of the messaging) *and* networks (the way in which the message affects who it is communicating with) and serves as a way to compare the influence campaigns using defined and consistent means. Definitions of the 16 BEND Maneuvers, can be found in [2] and [3], where each of the letters in BEND corresponds to maneuvers with the same initial with the B maneuvers

acting as positive network maneuvers, the E maneuvers serving as positive narrative maneuvers, the N maneuvers implying negative network maneuvers, and the D maneuvers indicating negative narrative maneuvers.

The vast majority of published literature utilizing the BEND Framework has analyzed the maneuvers seen on Twitter (including narratives around vaccination campaigns [4, 5], and information operations campaigns in the geopolitical context [5, 8]). In a first analysis of comparing BEND maneuvers by news type, [13] compares and contrasts the maneuvers utilized in Facebook posts about elections when they contain links to pink slime sites versus authentic local news sites. While Pink Slime sites used more positive narrative maneuvers like Explain and Excite as well as Dismiss while Local News relied heavily on Negate.

It found that the pink slime sites focused more on local elections than local news sites, which had a higher chance of discussion presidential elections and elections taking place in other states. This paper, however, did not include Reddit as a platform comparison nor the Real News and Low Credibility News types.

3 Data and Methods

3.1 Data Collection

This paper uses the same dataset and collection methods as [14]. A brief explanation follows, but further details may be found by reading [14]. Data pertaining to the United States 2022 Midterm Elections was collected from two social media platforms: Reddit (via Reddit’s Pushshift API¹) and Facebook (via Facebook’s CrowdTangle API²). The data were collected pertaining to the six states (Arizona, Georgia, Pennsylvania, Nevada, Wisconsin, and North Carolina) with the most competitive elections per [11]. The full set of keyword terms that we used to search is listed in the Appendix.

We collected our data starting a month prior to the United States 2022 midterms elections (November 8, 2022) until a month after the election took place. This makes our collection window from October 1, 2022 to December 1, 2022.

We collected 28,178 posts to Facebook Pages and 16,375 comments and posts on Reddit. Of those posts, 17,268 (Facebook Pages) and 7,811 (Reddit posts) linked to URLs that had a designated news type rating.

3.2 Annotating News Labels

Since each post contained a URL, we extracted the website domains from each URL and annotated them as one of the four news types - Real News (high credibility, national scope), Local News (high credibility, local scope), Low Credibility News (low credibility, national scope), and Pink Slime (low credibility, local scope) per the Media Thesaurus described in [14].

¹ <https://github.com/pushshift/api>

² <https://pypi.org/project/PyCrowdTangle/>

3.3 Linguistic Cues

In order to classify the BEND maneuvers present, each post required a set of linguistic features to be appended in accordance with the text of the post (for Facebook posts, this is the ‘Title’ and for Reddit it’s the text of the post or comment). The linguistic features, referred to as “cues”, using the NetMapper software [7] are estimates of various emotional states that are appended as attributes to each of the social media posts. These 121 cues are calculated using each post’s sentiment, use of pronouns, and icons.

3.4 The BEND Framework

When BEND is applied to Twitter data, the networks that determine the maneuvers are User x User by shared hashtag, retweet, or reply. In keeping with [13], the Facebook networks utilized (subject to limitations in the CrowdTangle data) is Facebook Page x News Domain Shared x Facebook Page. While Reddit data has not previously been analyzed in the BEND framework, the network of Reddit Post or Comment x Subreddit Posted To x Reddit Post or Comment was input into ORA.

The Organization Risk Analyzer (ORA)-PRO software [7] was used to visualize the dynamic meta-networks present in this dataset and run the BEND Report. Each platform’s datasets were loaded into ORA as separate meta networks, and the news type attribute was used for comparison within each of these networks.

4 Results and Discussion

4.1 Facebook

When we plot the Facebook network of Facebook Pages to the news domains shared by those pages in Figure 2 (as a reminder, the coloring of the nodes by news type maps to the same coloring from Figure 1), we see that the Real News news type is dominant followed by the Local News domains. The Real and Local news domains have higher total degree centrality than the Low Credibility and Pink Slime news domains. Here we see the majority of Pink Slime news domains as pendant nodes, shared by just one Facebook Page. Low Credibility News has more of its news domains incorporated into larger networks of multiple Facebook Pages sharing them. All news types have at least 400 instances of being shared on Facebook Pages each in this dataset.

When we analyze the type of content these posts are making by each “document” (in this case, Facebook post) in Figure 3, we see some interesting parallels in news types. Instead of by scope, we see the BEND maneuvers aligning by credibility of news sources. Both the Real and Local News types had similarly high usages of the Distract and Enhance maneuvers and much lower usage of the Engage maneuver. All of the news types showed that over 40% of their posts, in similar proportion, fell into the Dismay and Explain maneuvers.

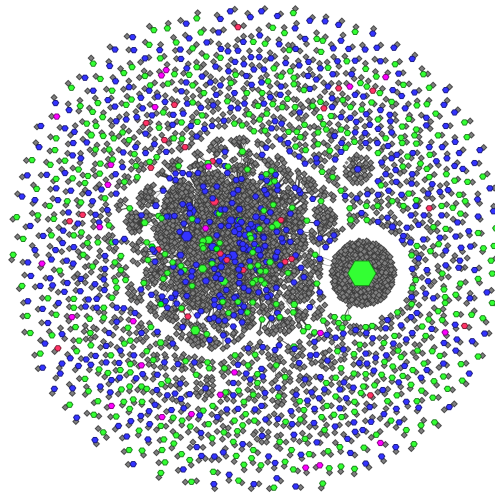


Fig. 2. Facebook Pages (gray nodes) connected to the news domains they share (colored by news type). Nodes are sized by total degree centrality.

The Distract maneuver is seen most commonly in Real and Local News posts that are linking one story (a few examples include the covid-19 pandemic and the prices of insulin) with the policy platforms of specific candidates. Many of these posts falling into the Distract maneuver *also* align with the Enhance maneuver since they are trying to shed light on important issues and what they believe the voters should know about them.

Pink Slime and Low Credibility News, meanwhile, had higher frequency of the Build and Engage maneuvers. The posts by these news types tend to be shorter and include more inflammatory, one-sided messaging that commonly invokes that phrase *we* (leading to higher amounts of the Build maneuver). More Engage was evoked by showing ways to directly participate, as a few Pink Slime sites ran the following post: “Former President Donald Trump urged Republicans to fight creeping censorship, saying efforts to silence dissent and deploy law enforcement against opponents were pushing America to a “tipping point.” At a rally Saturday night in Minden, Nevada, Trump urged Republicans to turn out in November in large numbers and support the GOP slate that includes Senate nominee Adam Laxalt and gubernatorial nominee Joe Lombardo. Both are leading in the latest polls.”

4.2 Reddit

When we plot the Reddit network of Subreddits to the news domains shared by those communities in Figure 4, we see an even higher domination of Real News than we did on Facebook (possibly tied to stricter moderation of the platform).

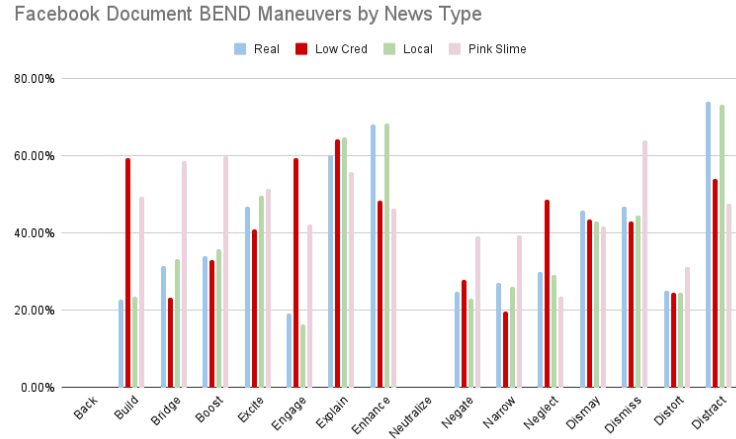


Fig. 3. BEND Maneuvers by News Type from Facebook Posts

However, more concerning, we see that Pink Slime and Low Credibility News sites are not so heavily shared as pendant nodes by a single community. They are more often shared by subreddits that also share credible news sources. This may be due to the ability for broader participation of anyone in a subreddit to share to it whereas Facebook Pages only have a few authorized sharers to their communities.

Before we begin analyzing the BEND maneuvers, an important caveat to mention is that there are only seven instances of pink slime being shared on Reddit for this dataset. All of the other news types have at least 600 instances each, so their breakdowns are less volatile. To assess the type of content these posts are making by each “document” (in this case, Reddit posts and comments) in Figure 5, we see that unlike Facebook (where we saw no instances of the Back maneuver), both Pink Slime and Low Credibility News have relatively high amounts of this maneuver. These appear to be due to the spamming of certain news stories (in particular a handful of stories by Breitbart) that do not appear to be picked up by other news outlets, thus performing the Backing (increasing the appearance of a topic’s importance relative to the topic). They also have a high amount of the Distract maneuver, with a high overlap of posts in both Distract and Back (by backing irrelevant stories that distract from on-topic messaging).

Interestingly, both local scope news types have high amounts of the Explain maneuver. We see this more in the Local News posts that are offering recaps of daily events or debates. Meanwhile, Real and Local News are high in Bridging. We see the Bridging maneuver used when posts reference two candidates, either detailing ways in which they are seeking unity or are highlighting differences in stances.

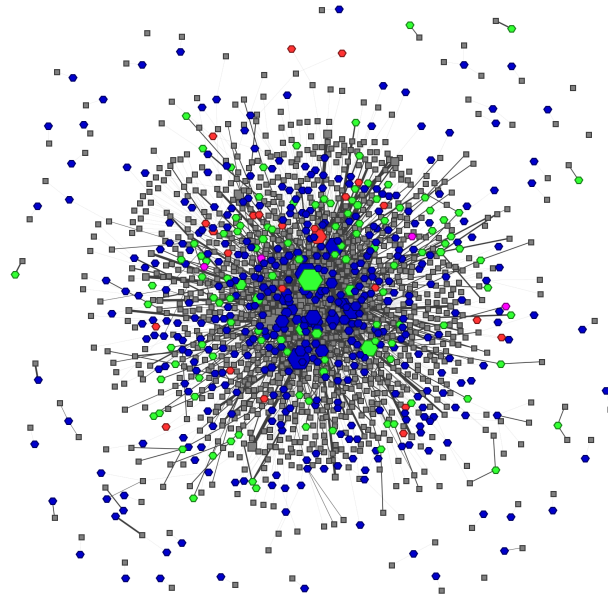


Fig. 4. Subreddits (gray nodes) connected to the news domains they share (colored by news type). Nodes are sized by total degree centrality.

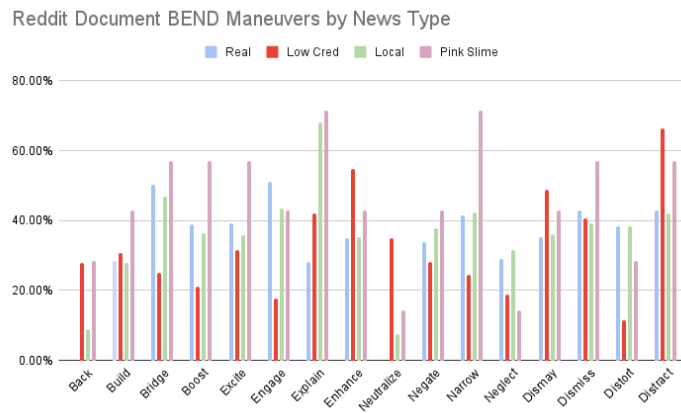


Fig. 5. BEND Maneuvers by News Type from Reddit Posts and Comments

5 Conclusions

All four primary news types highlighted in this paper are seen in Midterms 2022 posts on both Facebook and Reddit. While Reddit sees the two lower credibility news types more embedded into communities than Facebook does (likely due to the limited individuals given access to posting to a given Facebook Page compared to subreddits), we see a lower instance of these news types (particularly pink slime, for which we only see 7 Reddit posts or comments) on Reddit (likely due to stricter moderation within subreddits).

When election-related news is shared only (especially on Facebook), we see that maneuvers tend to align with the credibility of news types, with Low Credibility News and Pink Slime having similar maneuvers while Real News and Local News communicate their news using similar maneuvers. This lends some credence to the assessment that [15] made asserting that pink slime may be a subset of misinformation.

On Facebook, Real and Local News utilized the Distract and Enhance maneuvers to connect certain topics with specific candidates. Meanwhile, the two lower credibility news types used the Build and Engage maneuvers by making shorter, inflammatory posts with calls to action (i.e. voting). On Reddit, the lower credibility news types spammed unrelated stories, increasing their Back maneuver. The higher credibility news types used the Bridging maneuver by showing commonalities or differences between multiple candidates.

This paper shows that the BEND framework can be applied to Reddit. It is also the first to document similarities and differences in techniques utilized by the four news types.

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5.1 IRB Approval

This research was conducted with IRB approval in the Spring of 2024 Federalwide Assurance No: FWA00004206 IRB Registration No: IRB00000603.

6 Appendix

6.1 List of Search Terms

The full set of keywords used to pull data from the three social media platforms are: (Kelly OR Blake OR AZSen OR Lake OR Hobbs OR AZGov OR Crane OR Halleran

OR AZ02 OR Hodge OR Schweikert OR AZ01 OR Engel OR Ciscomani OR AZ06 OR Warnock OR Walker GASen OR Kemp OR Abrams OR GAGov OR McBath OR Handel OR GA06 OR Oz OR Fetterman OR PASen OR Shapiro OR Mastriano OR PAGov OR Scheller OR Wild OR PA07 OR Bognet OR Cartwright OR PA08 OR Shaffer OR Deluzio OR PA17 Mastro OR Laxalt OR NVSen OR Sisolak OR Lombardo OR NVGov OR Becker OR Lee OR NV03 OR Peters OR Hosford OR NV04 OR Robertson OR Titus OR NV01 OR Johnson OR Barnes OR WISen OR Evers OR Michels OR WIGov OR Van Orden OR Pfaff OR WI03 OR Vance OR Ryan OR OHSen OR DeWine OR Whaley OR OHGov OR Chabot OR Landsman OR OH01 OR Sykes OR Gilbert OR OH13 OR Kaptur OR Majewski OR OH09 OR Beasley OR Budd OR NCSen OR Nickel OR Hines OR NC13) AND (vote OR election OR elect OR race OR democrat OR republican OR AZ OR Arizona ORGA OR Georgia OR PA OR Pennsylvania OR NV OR Nevada OR WI OR Wisconsin OR OH OR Ohio OR NC OR North Carolina)

References

1. Bengani, P.: Hundreds of ‘pink slime’ local news outlets are distributing algorithmic stories and conservative talking points (2019), https://www.cjr.org/tow_center_reports/hundreds-of-pink-slime-local-news-outlets-are-distributing-algorithmic-stories-conservative-talking-points.php/, publication Title: Columbia Journalism Review
2. Beskow, David M.; Carley, K.M.: Social Cybersecurity An Emerging National Security Requirement — [armyupress.army.mil. https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/Mar-Apr-2019/117-Cybersecurity/b/](https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/Mar-Apr-2019/117-Cybersecurity/b/), [Accessed 01-12-2023]
3. Blane, J.T.: Social-cyber maneuvers for analyzing online influence operations
4. Blane, J.T., Bellutta, D., Carley, K.M.: Social-cyber maneuvers during the COVID-19 vaccine initial rollout: Content analysis of tweets **24**(3), e34040. <https://doi.org/10.2196/34040>, <https://www.jmir.org/2022/3/e34040>, company: Journal of Medical Internet Research Distributor: Journal of Medical Internet Research Institution: Journal of Medical Internet Research Label: Journal of Medical Internet Research Publisher: JMIR Publications Inc., Toronto, Canada
5. Blane, J.T., Ng, L.H.X., Carley, K.M.: Analyzing social-cyber maneuvers for spreading covid-19 pro-and anti-vaccine information. In: Vaccine Communication Online: Counteracting Misinformation, Rumors and Lies, pp. 57–80. Springer (2023)
6. Carley, K.: BEND: a framework for social cybersecurity. **6**(2), 22–27
7. Carley, L., Reminga, J., Carley, K.: ORA & NetMapper (2018), 11th International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation;
8. Danaditya, A., Ng, L.H.X., Carley, K.M.: From curious hashtags to polarized effect: profiling coordinated actions in indonesian twitter discourse. *Social Network Analysis and Mining* **12**(1), 105 (2022)
9. Desilver, D.: Turnout in 2022 house midterms declined from 2018 high, final official returns show (2023), <https://www.pewresearch.org/short-reads/2023/03/10/turnout-in-2022-house-midterms-declined-from-2018-high-final-official-returns-show/>

10. Gramlich, J.: 10 facts about americans and facebook, <https://www.pewresearch.org/fact-tank/2021/06/01/facts-about-americans-and-facebook/>
11. Groskopf, C.: Who's ahead in competitive districts: 50 most competitive races (2022), <https://projects.fivethirtyeight.com/2022-election-forecast/house/>
12. Guess, A.M., Nyhan, B., Reifler, J.: Exposure to untrustworthy websites in the 2016 US election **4**(5), 472–480. <https://doi.org/10.1038/s41562-020-0833-x>, <https://www.nature.com/articles/s41562-020-0833-x>, number: 5 Publisher: Nature Publishing Group
13. Lepird, C.S., Carley, K.M.: Comparison of online maneuvers by authentic and inauthentic local news organizations (2023)
14. Lepird, C. S., N.L.H.X.W.A..C.K.M.: What news is shared where and how: A multi-platform analysis of news shared during the 2022 u.s. midterm elections. *Social Media + Society* **10**(2) (2024). <https://doi.org/10.1177/20563051241245950>
15. Lynch, M.: 2022 Midterms - Pink Slime, Misleading Ads, and more — audacy.com. <https://www.audacy.com/kmox/news/local/2022-midterms-pink-slime-misleading-ads-and-more> (2022), [Accessed 23-09-2023]
16. Moore, R., Dahlke, R., Bengani, P., Hancock, J.: The consumption of pink slime journalism: Who, what, when, where, and why? (2023). <https://doi.org/10.31219/osf.io/3bwz6>, publisher: OSF Preprints
17. Walker, M., Masta, K.E.: News Consumption Across Social Media in 2021 — pewresearch.org. <https://www.pewresearch.org/journalism/2021/09/20/news-consumption-across-social-media-in-2021/> (2021), [Accessed 23-09-2023]
18. Wang, Y., Zannettou, S., Blackburn, J., Bradlyn, B., De Cristofaro, E., Stringhini, G.: A Multi-Platform Analysis of Political News Discussion and Sharing on Web Communities. In: 2021 IEEE International Conference on Big Data (Big Data). pp. 1481–1492 (2021). <https://doi.org/10.1109/BigData52589.2021.9671843>