

# Analysis of Virality of Fake News and Real News

Abhinav Parashar (11902), Deven Mahlawat (11917), Kartikey Saran (11924), Prabhat Gupta (11931)

Mentored By: Dr. Sachin Kumar

## Abstract

There is worldwide concern over false news and the possibility that it can influence political, economic, and social well-being. To understand how false news spreads, we have retrieved fake and real tweets related to some news content in a particular time period. False news traveled 5.29 times faster than the truth; There were 20859 bots/fake accounts out of 1,22,700 tweets in our dataset which were ineffective even after removing them. Most of the social media platforms follow the same algorithm for recommending a post to a user. The virality of a news is much like a virus as the more times a person is exposed to a piece of fake news, especially if it comes from an influential source, the more likely they are to become persuaded or infected.

## Methodology

- Fetched tweets for 6 news content in a particular time period
- Virality of a tweet =  $\Sigma$  Followers count of any user performing an action on a tweets (Action such as Likes, Comments, Quotes, Retweets)

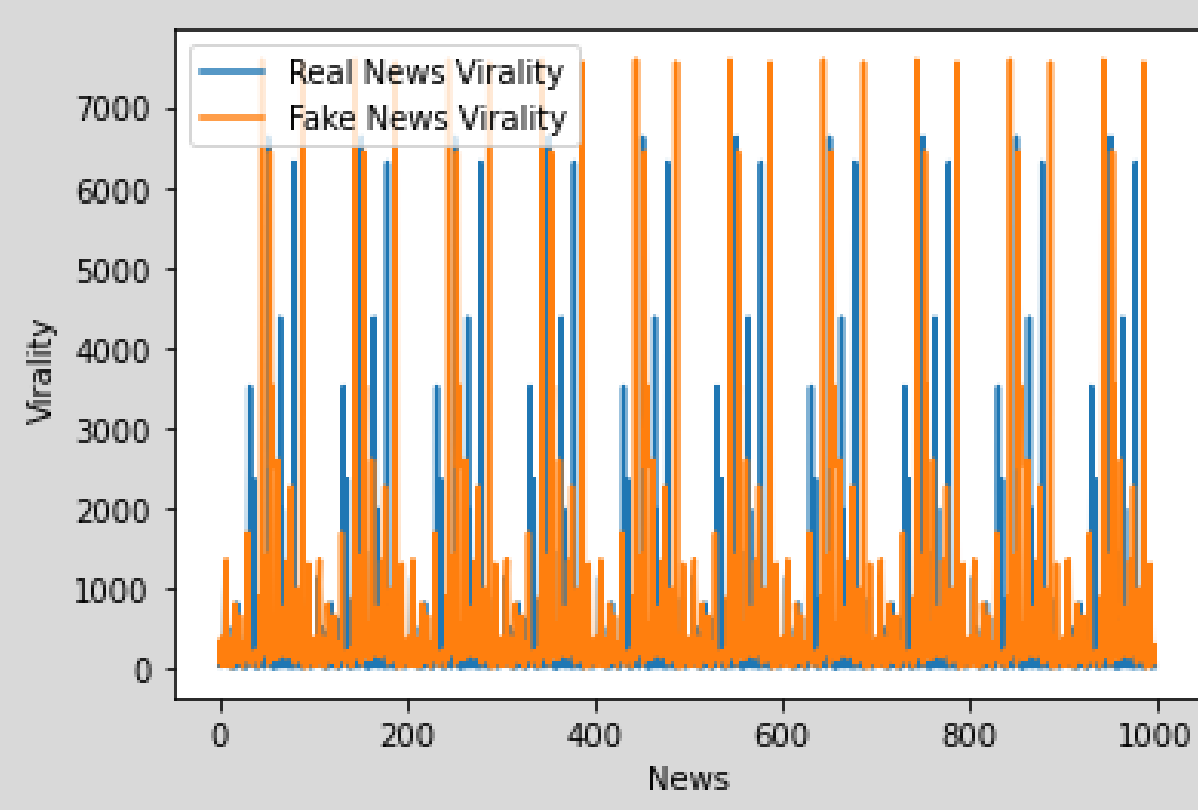


Fig.1 Fake News and Real News Virality

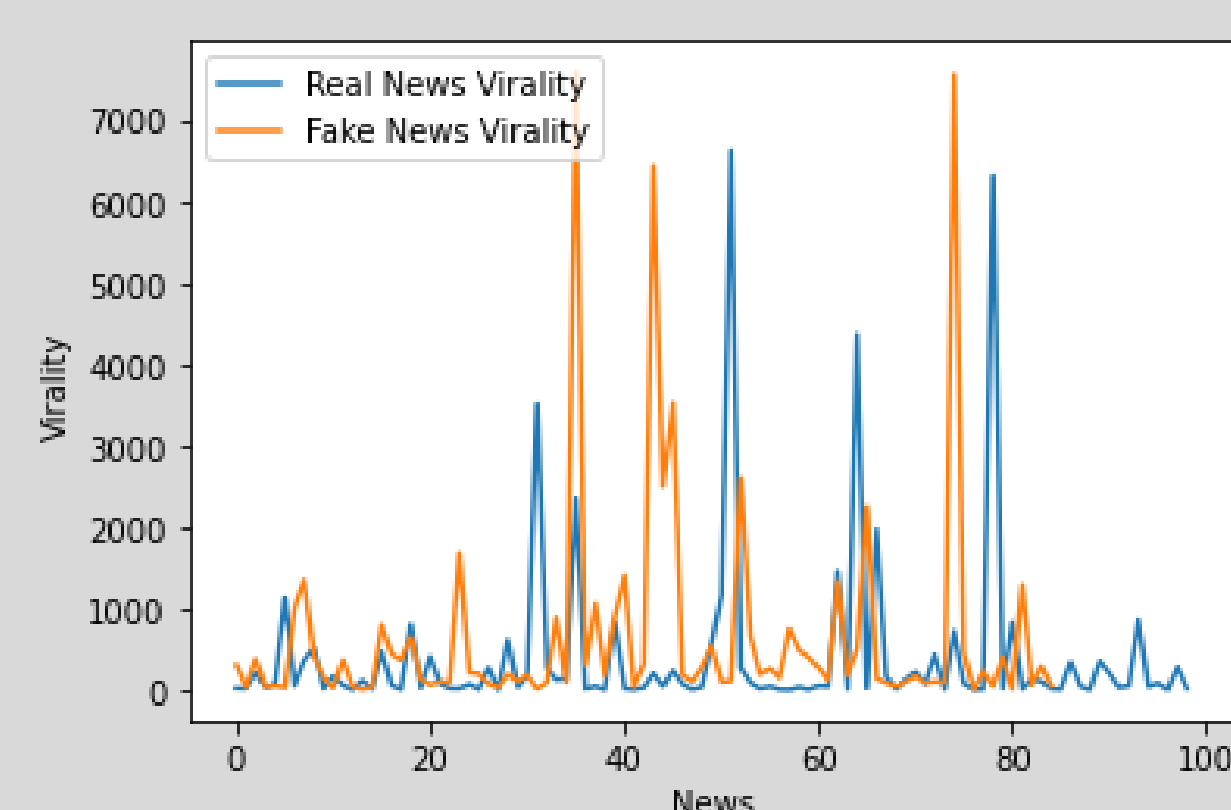
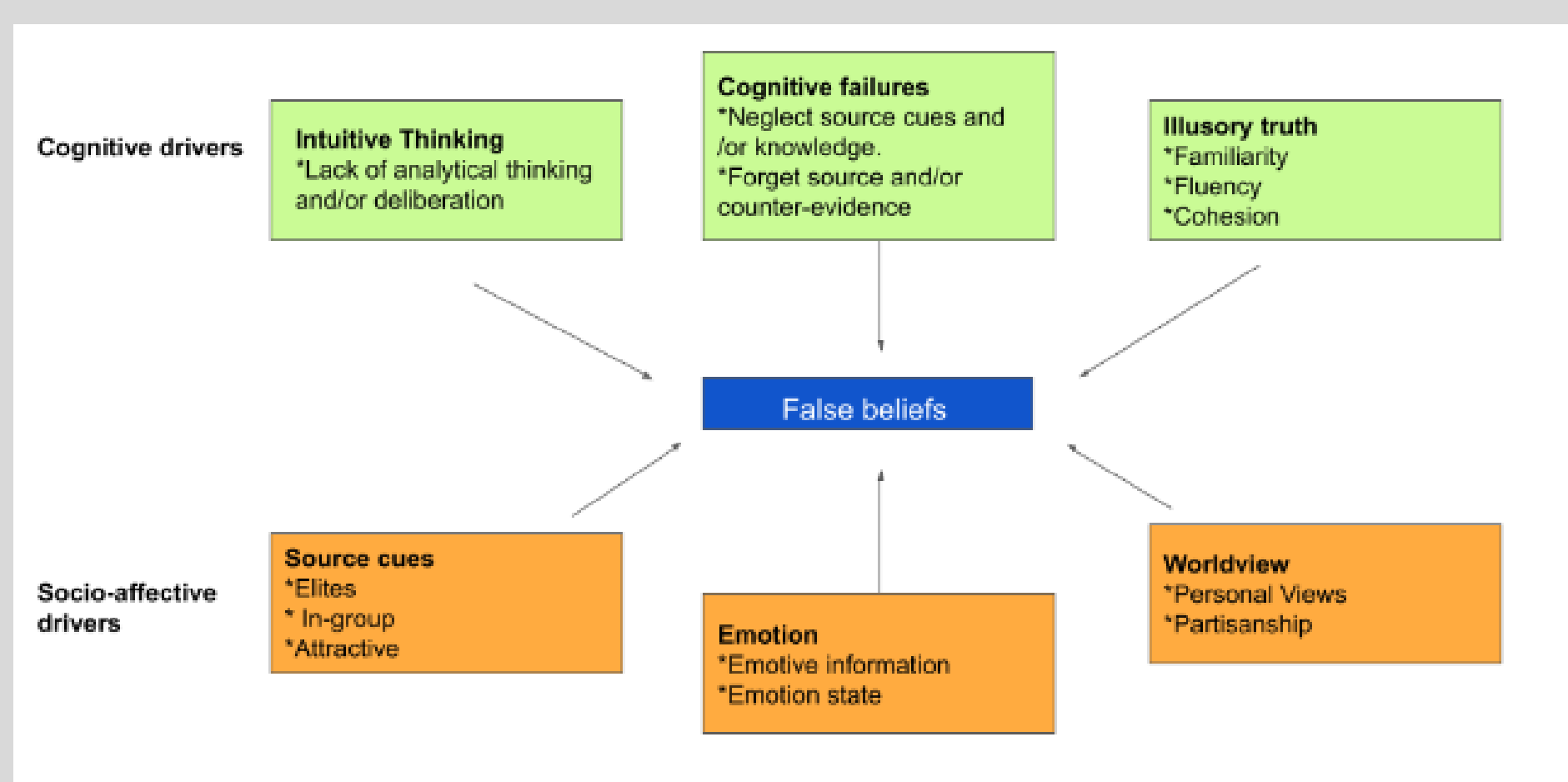


Fig.1 Fake News and Real News Virality after removing bot/fake accounts data

- The Fig.1 shows the virality of Fake News being 18.643 times the virality of Real News
- Fig.1 data contained an outlier of similar account being add up multiple times
- Fig. 2 shows the virality of Fake News being 5.29 times the virality of Real News after removing the outlier
- There were 20,859 out of 1,22,700 tweets made by fake/bot account.
- Fig. 3 shows the virality of Fake News being 5.43 times the virality after expelling the tweets from bot/fake accounts.
- Bots/Fake account were not responsible for making a news viral.
- Algorithms are used in social media to filter the content of a user's feed. With so much content available, it is a way for social media to prioritize content that they think the user will like based on a few factors.



- Psychological factors can play a role in Virality of a News
- Drivers of false beliefs. Some psychological (green) and socio-affective(orange) are factors that can contribute to the development of false beliefs when people are like that exposed to false information. Not all features will always be important, but many features often contribute to false beliefs

## Result & Outcomes

- From our study we have found that the Fake News travels **5.299** times faster than the Real News.
- Humans/Real accounts were responsible for making any news viral since according to our dataset we found that out of **1,22,700** tweets of fake news only **20859** accounts were found to be bot which is a very low number and doesn't play any deciding role for making any news viral.
- Algorithms are used in social media to filter the content of a user's feed. With so much content available, it is a way for social media to prioritize content that they think the user will like based on a few factors.
- Psychological factors and Socio-effective factors can contribute to false belief, the more the users are exposed to false information the user is more likely to believe and share false information

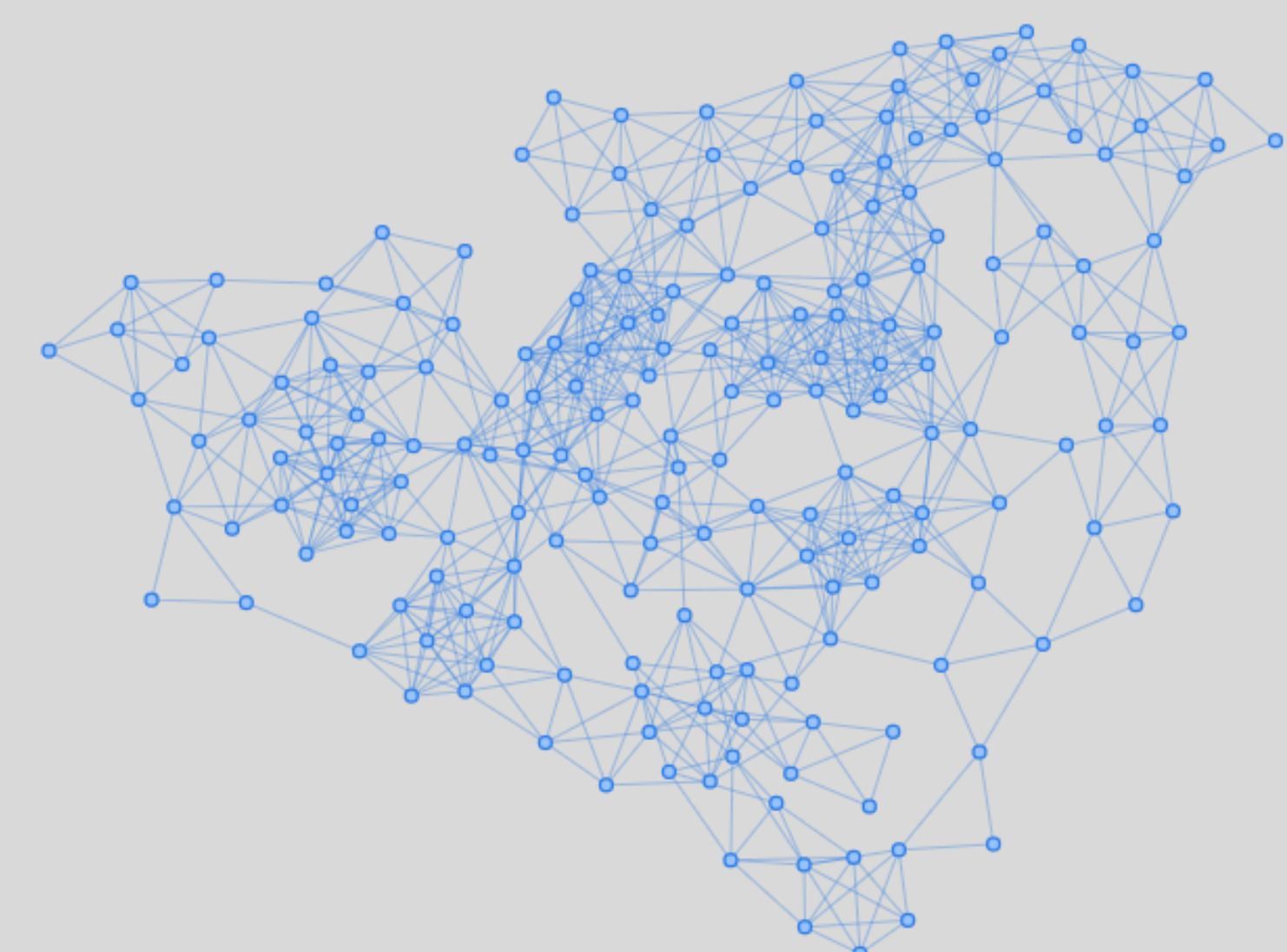


Fig.4 Network Model of a Virality of a Fake News for 5 users where nodes represents user and every other they are connected to are there followers

## Future Work

- Filtering out tweets for further improving the accuracy of our result
- Improving the accuracy of fake/bot model detection
- Expanding our dataset by fetching more tweets from various events
- Considering psychological factor in our model to determine its effectiveness in virality of a news

## Reference

- <https://news.mit.edu/2018/study-twitter-false-news-travels-faster-true-stories-0308>
- <https://arxiv.org/abs/2004.10399>