The Mechanisms of Misinformation

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INTRODUCTION

Misinformation has emerged as one of the leading problems our society faces in the information age.

Recent research has shown that misinformation spreads differently than non-misinformation on social media. This project leverages this insight by modeling the spread of information with

diffusion networks:
$G = (V,E)$
V = Users involved in the spread of an article
E = Directed edge from a user that gives information to the user that receives information.

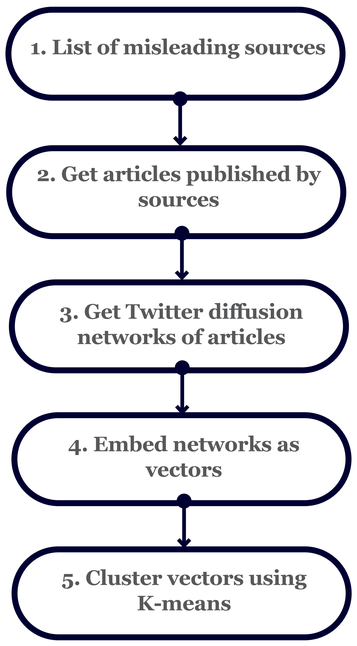
Diffusion networks with similar shape means information is spread similarly.

RESEARCH QUESTIONS

• Can we find a set of ways in which misinformation consistently spreads on social media?

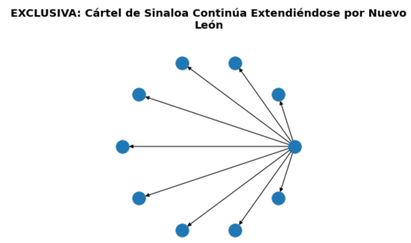
• What do each of these categories tell us about the nature of misinformation on social media?

METHOD



RESULTS

MECHANISM 0

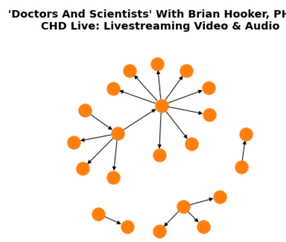


Representative network and article title from cluster 0

Characteristics

• Single source
• Spreads to fewer users
• Spreads faster

MECHANISM 1

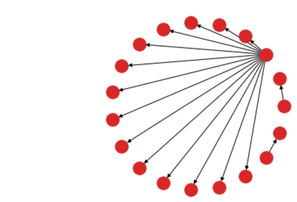


Representative network and article title from cluster 1

Characteristics

• Many distinct sources
• Diffusion not dominated by a single source
• Spreads slower
• Spreads to more users

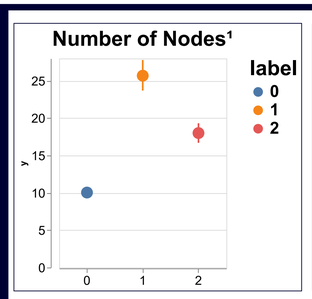
MECHANISM 2

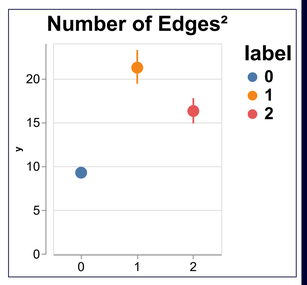


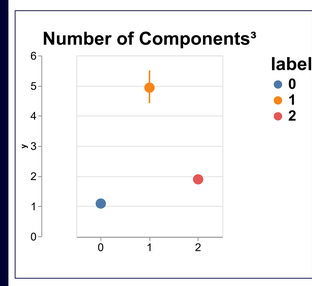
Representative network and article title from cluster 2

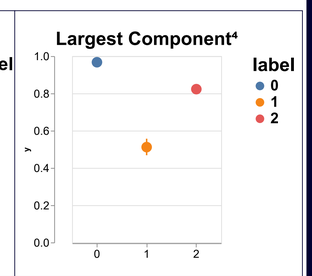
Characteristics

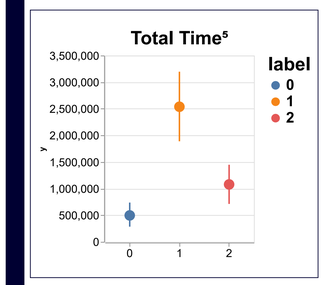
• In between mechanisms 0 and 1
• A few distinct sources
• Diffusion is still dominated by a single source

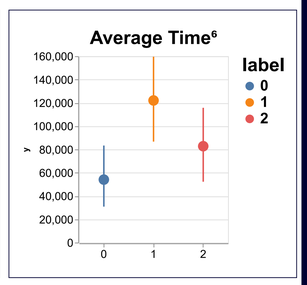


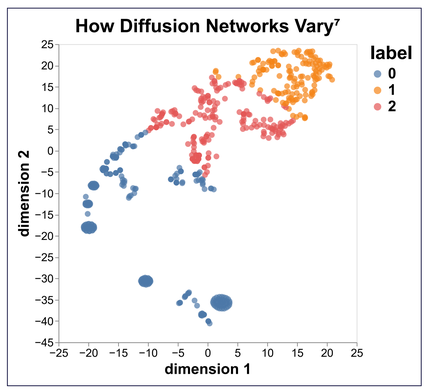












CONCLUSION

• We were able to algorithmically extract differences in the ways misinformation spreads on social media

• Mechanism 1 could potentially be the most dangerous
  - Information reaches more people
  - Information is spreading for longer duration
  - The separate diffusion networks make it harder to determine who started spreading the information
  - The separate networks could potentially indicate a coordinated attempt to spread misinformation

• Mechanism 0 contrasts with Mechanism 1
  - Mechanism 0 is the simplest way to spread information
  - It is less impactful than Mechanism 1

IMPLICATIONS

Knowing the ways in which misinformation spreads can guide social media policy to prevent the spread of misinformation and stop those who deliberately aim to spread it.

FUTURE DIRECTIONS

• Do these patterns generalize?
• Why do these patterns exist? Is it because of problems with social media policy?
• Do these patterns signify strategies used by people who want to spread misinformation?

ACKNOWLEDGEMENTS

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