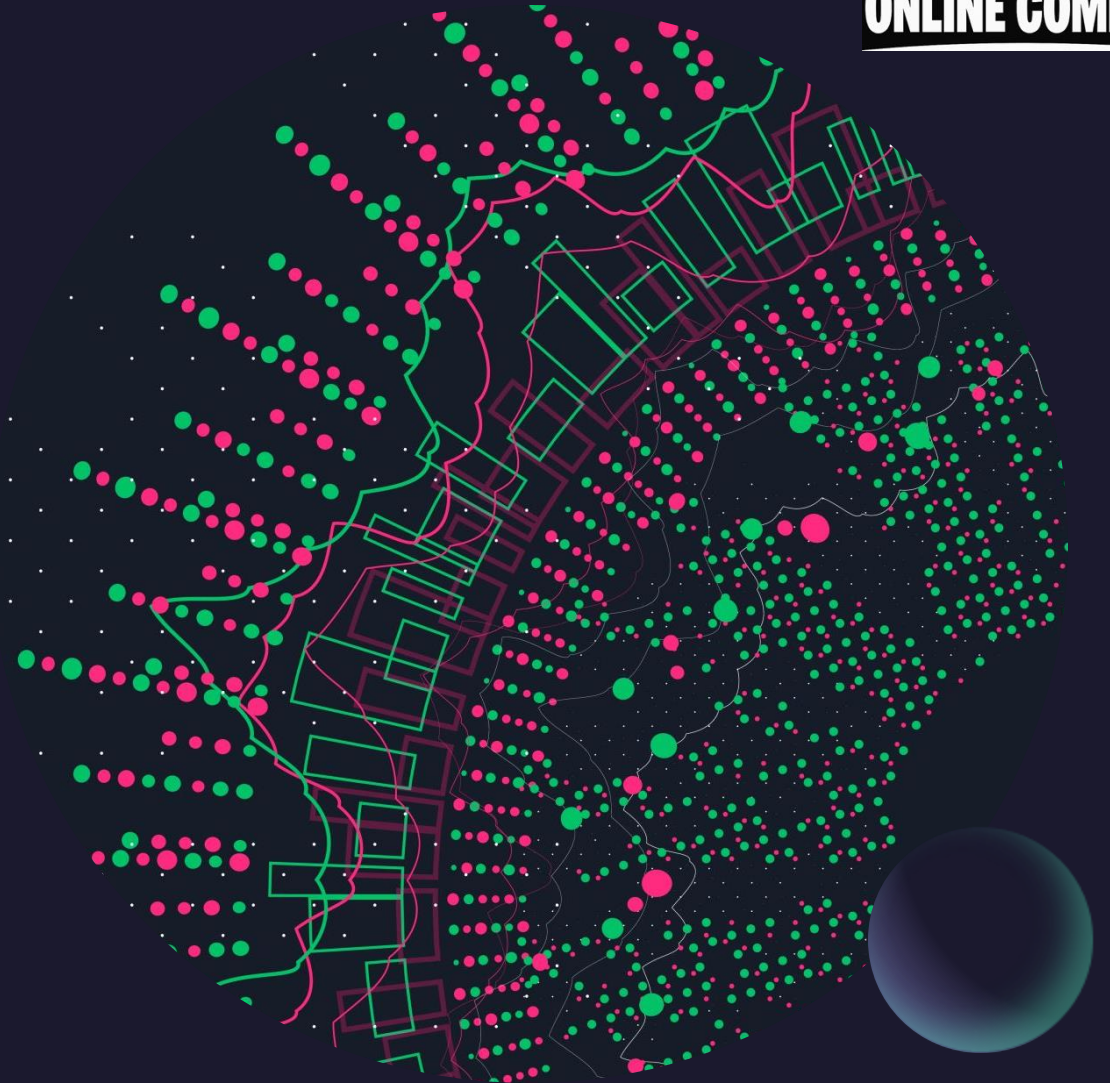


Combating Online Misinformation to Prevent Radicalisation of Vulnerable Adults



Module 2.

Cognitive drivers of misinformation



Why we believe misinformation



Assumption of truth

People expect information to be true and clear

Source credibility

People believe sources they consider credible

Processing fluency

Simple and familiar is perceived as true



Motivated reasoning

Our goals and predispositions influence how we interpret information

Negativity bias

We are more motivated to avoid bad events than to pursue good ones

Emotional snowballing

We select emotional content faster than informational

Psychological theories of misinformation

Cognitive dissonance theory

Festinger, 1957: People strive for internal consistency and avoid contradictory information.

Inferring truth from base rates

Gilbert, 1991: People rather assume a statement is true than false because revising information requires more cognitive effort.



Feelings-as-information theory

Schwarz, 2012: People interpret their own subjective experiences as evidence of truth.

Referential theory of truth

Unkelbach & Rom, 2017: People draw inferences from consistency with existing knowledge and source information stored in memory.



Cognitive drivers of false beliefs

Familiarity

A message has been encountered before

Processing fluency

A message is encoded or retrieved effortlessly

Cohesion

Elements of a message are internally consistent

Intuitive thinking

Lack of rational reasoning and deliberation

Availability heuristics

Immediate examples easily come to mind

Negativity bias

A tendency to give greater weight to negative events





Processing fluency effect



1

2

How many animals of each kind did Moses take on the ark?

How many animals of each kind did Moses take on the ark?

88%

12%

53%

47%

"2"

"0"

"2"

"0"

Source: Song and Schwarz (2008)



Intuition vs reasoning

System 1



Intuition

Fast, parallel, automatic,
effortless, associative,
emotional

System 2



Reasoning

Slow, controlled,
effortful, rule-governed,
flexible, neutral



Source: Kahneman (2011) Thinking fast and slow

Prospect theory: Framing gains vs losses

Insulating our house can save us hundreds of euros each year.



Gains

We lose energy from the roof, the door, the walls and the windows. To reduce electricity bills and pollution, we need to keep energy losses from our homes to a minimum.



Losses

Negativity bias

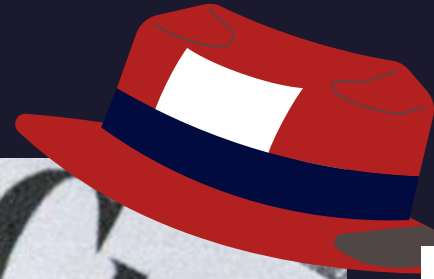
- Negative events attract more attention and are perceived as more informative due to higher diagnosticity
- Negative (bad) information is processed more thoroughly than positive (good) information
- Negativity is associated with news, and positivity with persuasion attempts
- Positive information is more redundant
- Negative information is more distinct



*Happy families are
all alike; every
unhappy family is
unhappy in its
own way.*

Leo Tolstoy

Anna Karenina



RESEARCH

SOCIAL SCIENCE

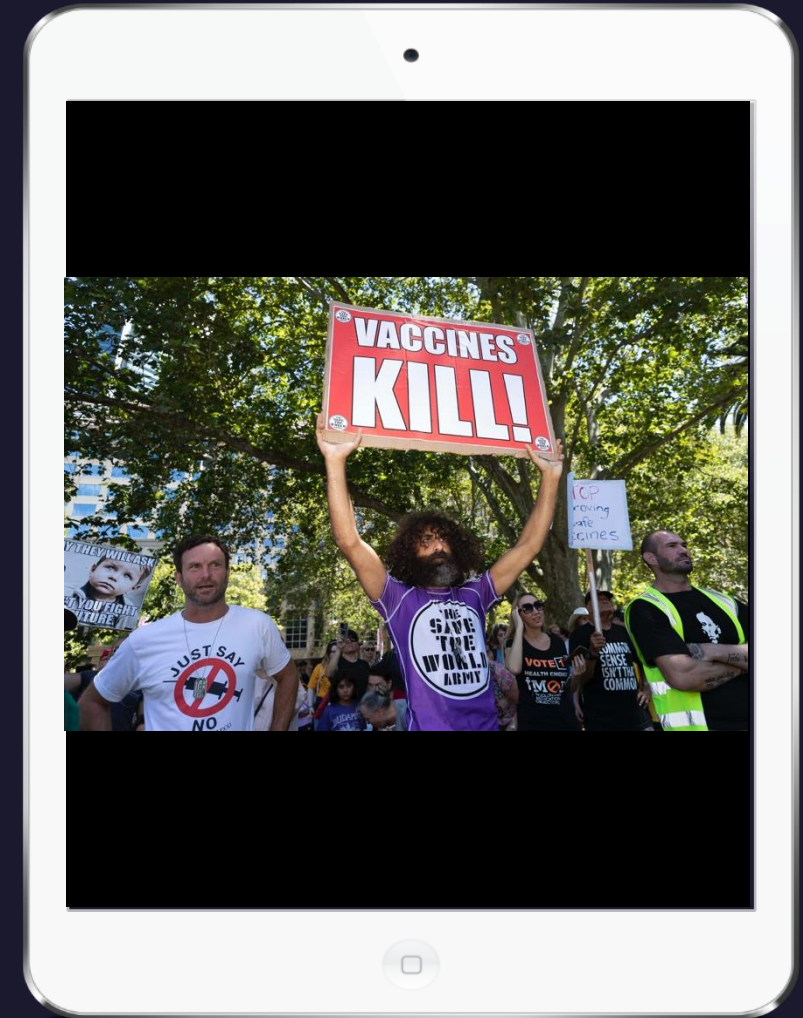
The spread of true and false news online

Soroush Vosoughi,¹ Deb Roy,¹ Sinan Aral^{2*}

We investigated the differential diffusion of all of the verified true and false news stories distributed on Twitter from 2006 to 2017. The data comprise ~126,000 stories tweeted by ~3 million people more than 4.5 million times. We classified news as true or false using information from six independent fact-checking organizations that exhibited 95 to 98% agreement on the classifications. Falsehood diffused significantly farther, faster, deeper, and more broadly than the truth in all categories of information, and the effects were more pronounced for false political news than for false news about terrorism, natural disasters, science, urban legends, or financial information. We found that false news was more novel than true news, which suggests that people were more likely to share novel information. Whereas false stories inspired fear, disgust, and surprise in replies, true stories inspired anticipation, sadness, joy, and trust. Contrary to conventional wisdom, robots accelerated the spread of true and false news at the same rate, implying that false news spreads more than the truth because humans, not robots, are more likely to spread it.

Why fake news spread faster than the truth?

- False news are more novel than true news: people are more likely to share **new** information
- False stories inspire **fear, disgust, and surprise**
- True stories inspire anticipation, sadness, joy, and trust
- Humans are more likely to spread false news than robots



Rise of the Machines

- **Bots:** algorithm-based software programs that automatically produce content and interact with humans trying to emulate and possibly alter their behaviour (Ferrara et al., 2016)
- **Attention hacking:** conspiracy theorists, Men's Rights advocates, trolls, anti-feminists, anti-immigration activists increase the visibility of their ideas by using bots



User profiling and tailoring

- Technology enables senders to **tailor** persuasive messages to the specific psychological **profiles** of individual users.

What are the results?

- People are more likely to be connected to other people who believe the news, which leads to social credibility and reinforcement.
- People are more likely to be exposed to the fake news are more likely to believe it. They are less likely to be exposed to information that contradict their beliefs.
- Normative pressure to spread fake news (even if one does not believe it).



Consequences of automatic tailoring

Decline in public trust and confidence in mainstream media. A rise in political polarization. Groups of like-minded users are not subject to outside views.

Algorithms used by social media select new content for users based on their previous engagement, making it less likely that users are exposed to new information.



Echo chambers



Filter bubbles



Counterstrategies

Warning

Warning precedes the exposure to fake news

Inoculation

A weakened version of a misinformation to create an immunity

Education

Information and media literacy interventions



Disclosures

Labelling of promoted content to undermine the credibility of its source

Corrections

Alternative explanation by high-credibility sources

Retractions

of articles due to data falsifications and errors

Counterstrategies: Digital tools



Fact-checking

By investigative journalists and volunteers



Labelling false content

"Sponsored",
"AI-generated"



Chatbots

AI-powered factchecking



Educational games

Inoculation against propaganda



Quiz

- **3. How does cognitive dissonance relate to the acceptance of misinformation?**
 - (A) It causes individuals to dismiss conflicting evidence in favour of familiar information.
 - (B) It causes individuals to seek out and accept contradictory information.
 - (C) It leads to greater scrutiny of familiar but false claims.

Correct answer: A





Quiz

1. What do we mean by "framing" in the context of truth judgments?

- (A) The linguistic style used to enhance emotional appeal.
- (B) The presentation of information in a positive or negative light without altering the factual content.
- (C) The method of visually enhancing a claim to make it more credible.

Correct answer: B





Quiz

- **2. Why might negatively framed statements be perceived as more truthful?**
 - (A) They align better with individuals' worldviews.
 - (B) They are considered more diagnostic and informative.
 - (C) They require less cognitive effort to process

Correct answer: B



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