

# Cognitive Biases in Misinformation Tweets

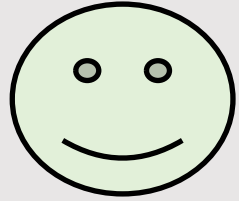
Lynnette Hui Xian Ng

Paper link:



# Human Biases

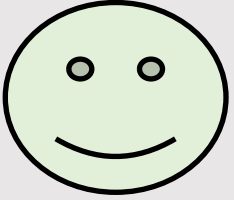
Shortcuts that the human brain uses to make sense of uncertainty



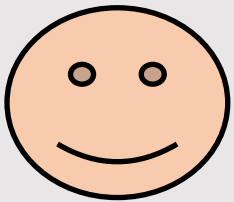
**KIMCHI CAN CURE FLU**



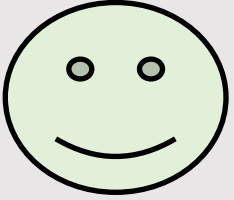
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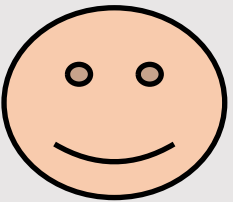


Okay, maybe kimchi can cure flu

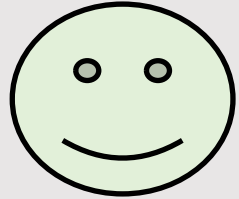


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## AVAILABILITY BIAS



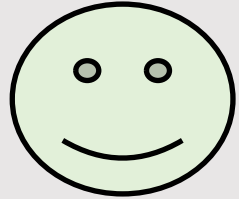
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**Kimchi can cure flu**

**Kimchi can cure flu really fast**

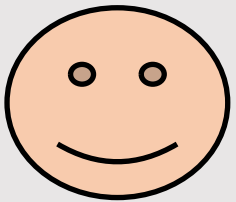
**Kimchi soup cured my flu**



**Kimchi can cure flu**

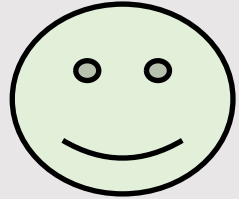
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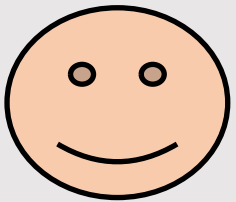


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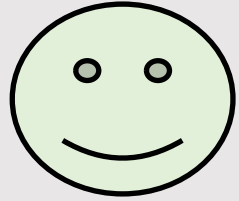
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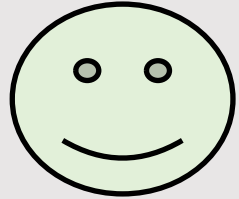
## ILLUSORY TRUTH EFFECT



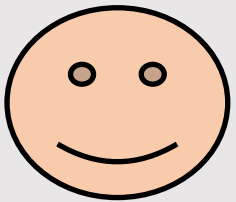
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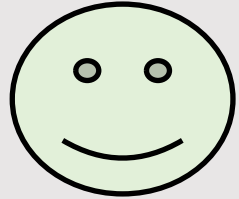
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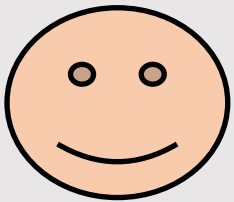


I think Kimchi cures flu!

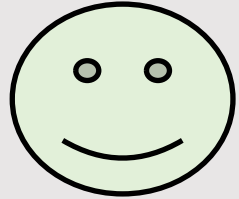


**KIMCHI REALLY CURES FLU!!!**

## AFFECT BIAS



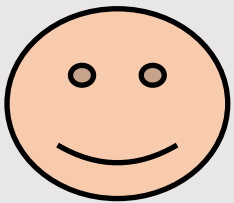
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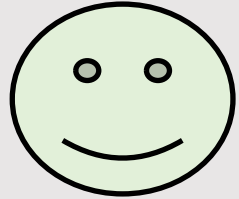
**Don't trust your doctors.  
Just take kimchi, it can cure flu.  
Your doctors are lying, all you need is  
kimchi**



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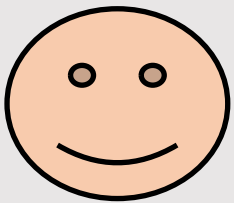


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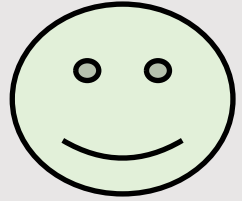


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## NEGATIVITY BIAS



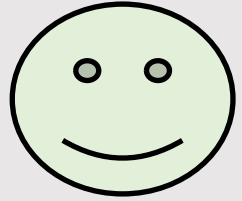
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**Dr. Z:**

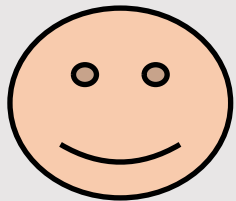
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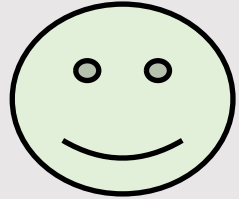


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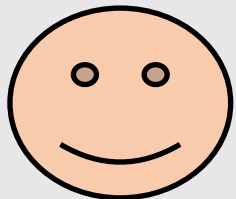
Got to eat kimchi because Dr. Z says  
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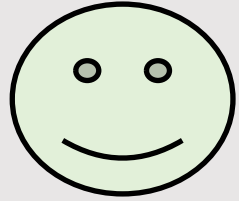
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**KIMCHI CAN CURE FLU**

## **AUTHORITY BIAS**

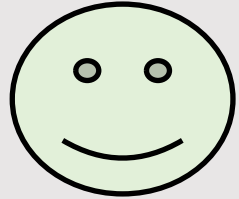


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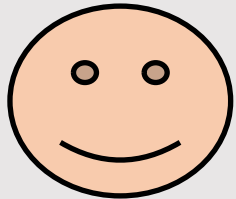


**Mum 1:**

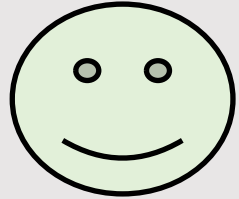
**Kimchi can cure flu for kids**



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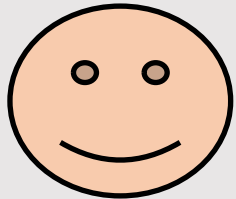


**Mum 2:**  
**Feeding my sick kids kimchi cuz**  
**Mum 1 says it cures flu**

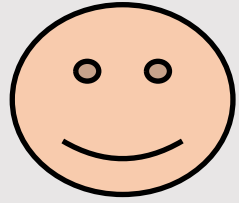


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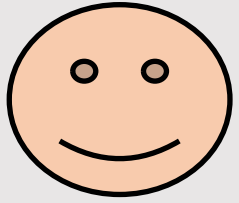
## **HOMOPHILY BIAS**



**Mum 2:**  
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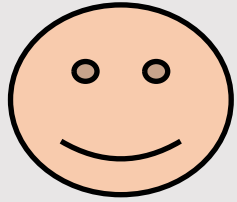
I hear kimchi can cure flu



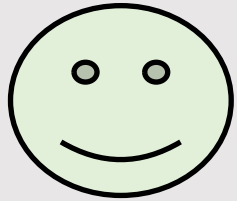
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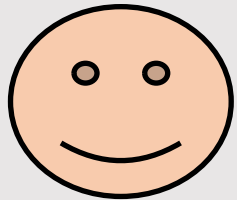
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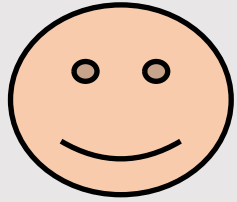


**Kimchi does cure flu**



Yup, orange said kimchi can cure flu

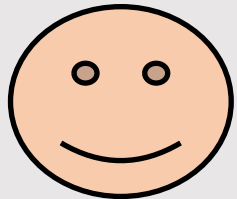




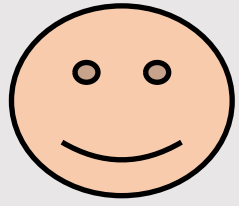
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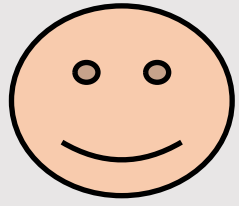
## CONFIRMATION BIAS



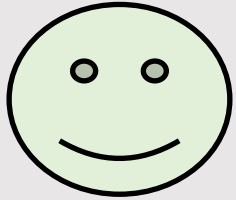
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Kimchi doesn't cure flu



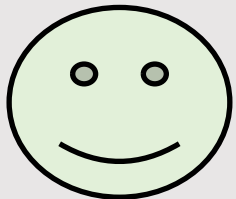
Kimchi doesn't cure flu



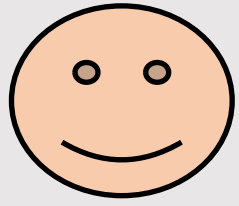
**Nono, kimchi cures flu**



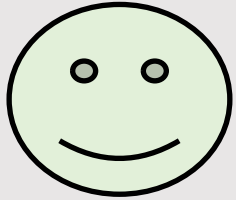
**I ate kimchi and it cured my flu**



**Kimchi cured my flu really quickly**



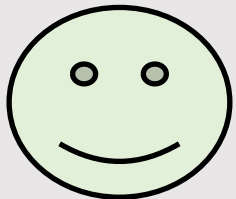
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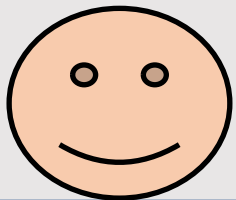
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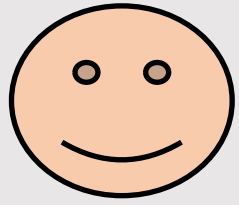
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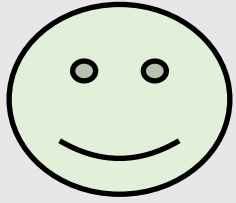
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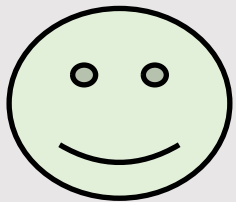
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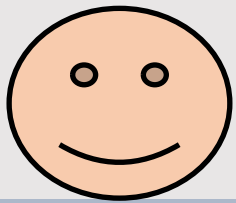
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**COGNITIVE DISSONANCE**



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# Persuasion

- Goal: elicit changes in attitudes or behaviour

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- Social media – widespread reach, accessibility, capacity for cultivating diverse networks

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- Goal: elicit changes in attitudes or behaviour
- Social media – widespread reach, accessibility, capacity for cultivating diverse networks
- Social Media Bots – automated persuasion



# Persuasive Influence

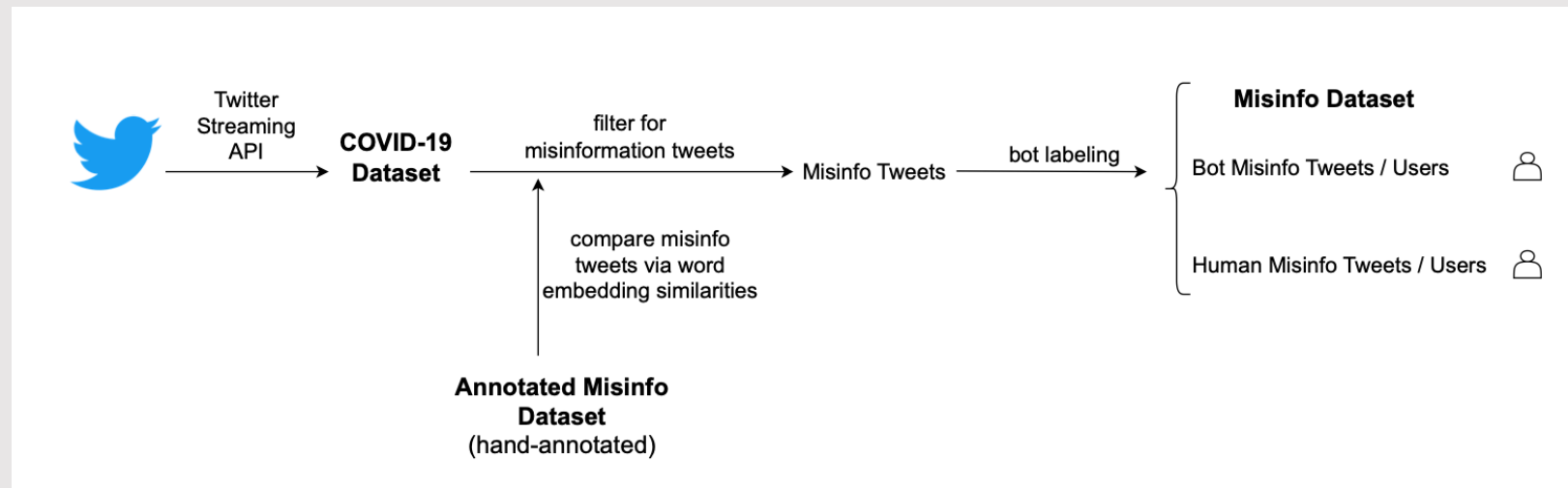
- What impact does persuasive influence have on engagement?

# Research Questions

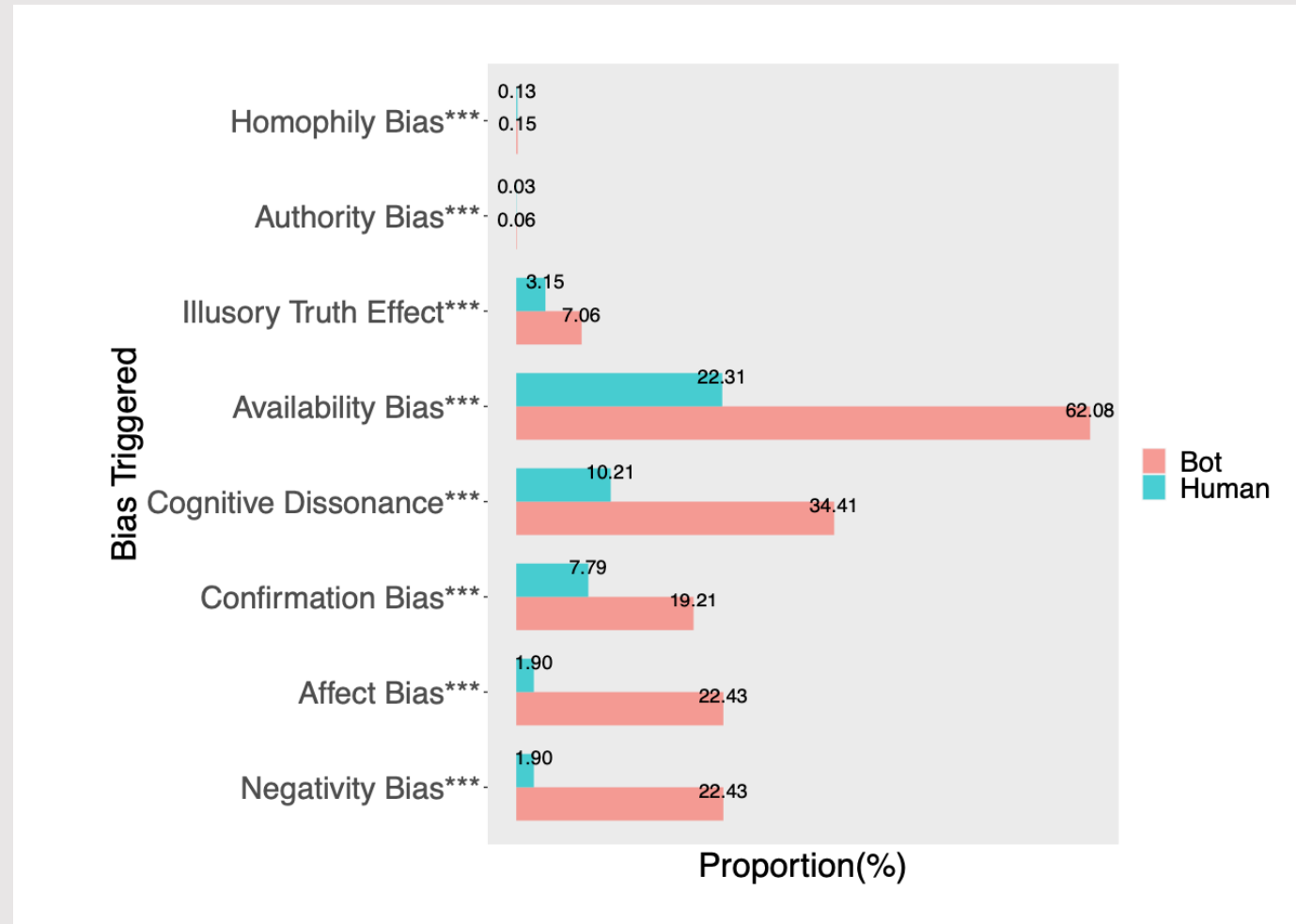
- How can we methodically identify triggers of human biases in online discourses during the pandemic?
  - How do bots employ triggers differently than humans?
- To what extent did triggers of human biases facilitate misinformation to engagement?
  - Did Bot-authored misinformation or Human-authored misinformation benefit more?

# Dataset

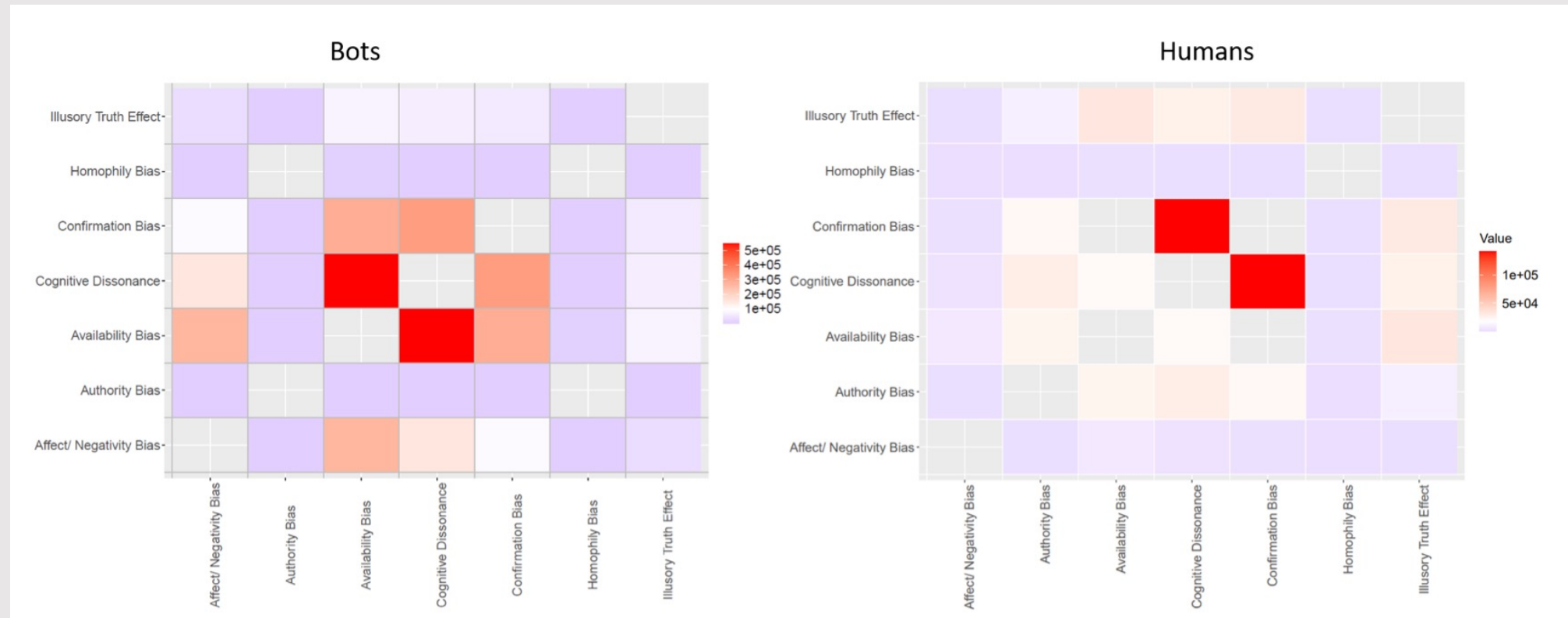
## COVID-19 Misinformation Tweets



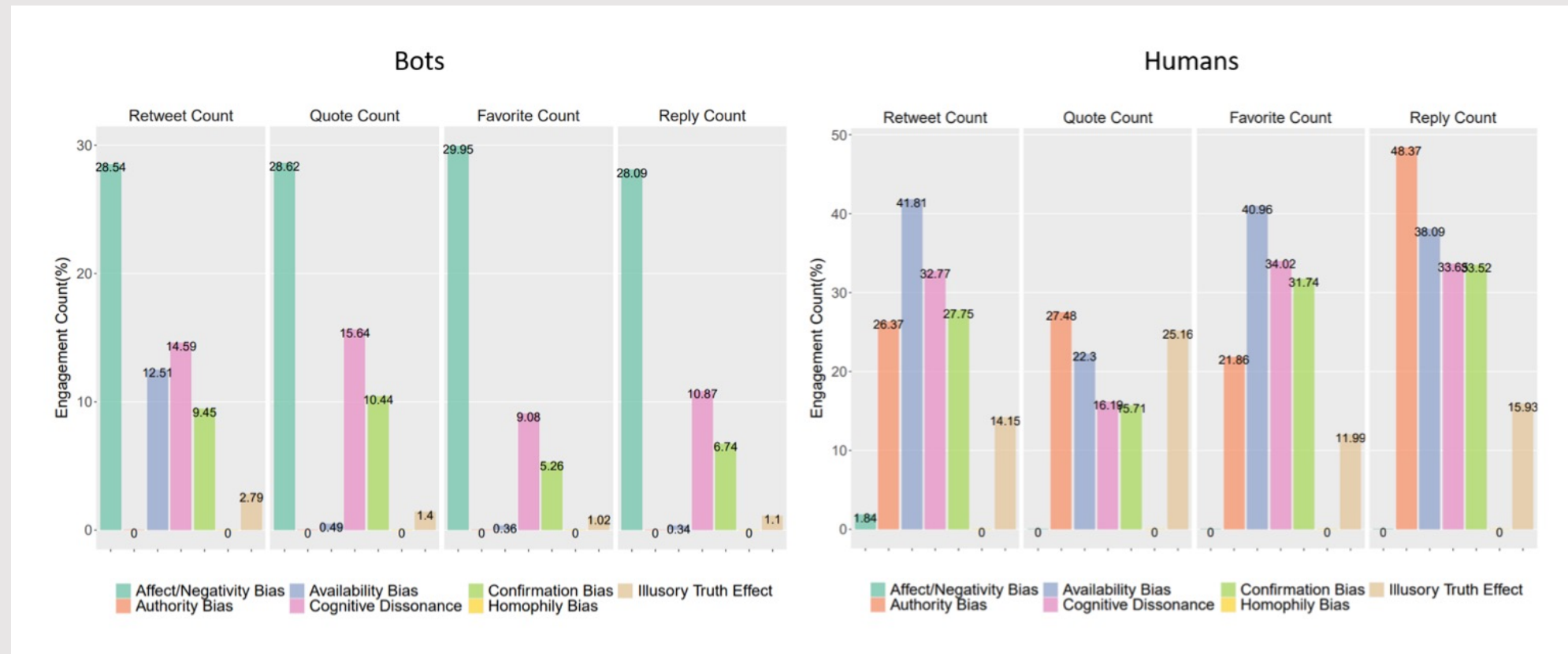
# Bots trigger more biases than Humans



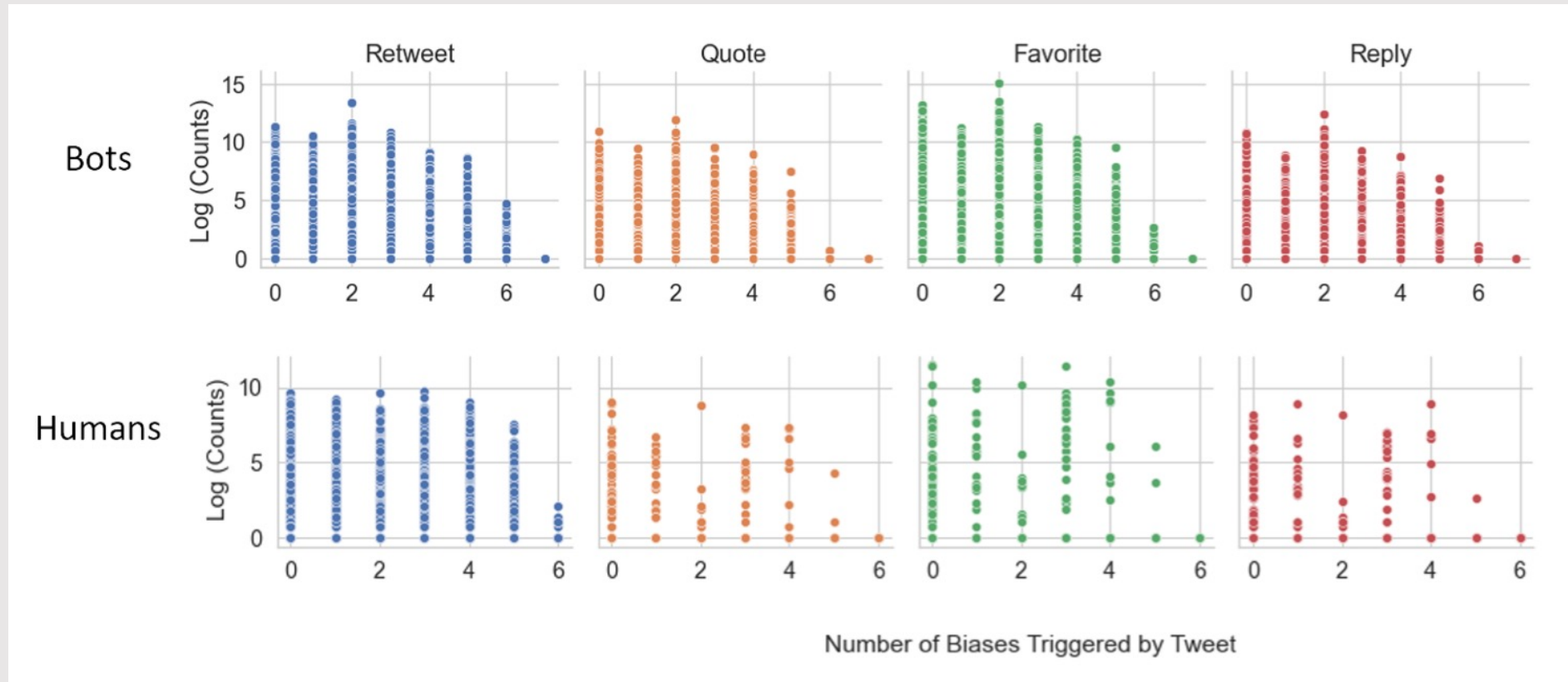
# Similar yet different co-occurrences of bias triggers



# Bots have consistent engagement from Bias Triggers

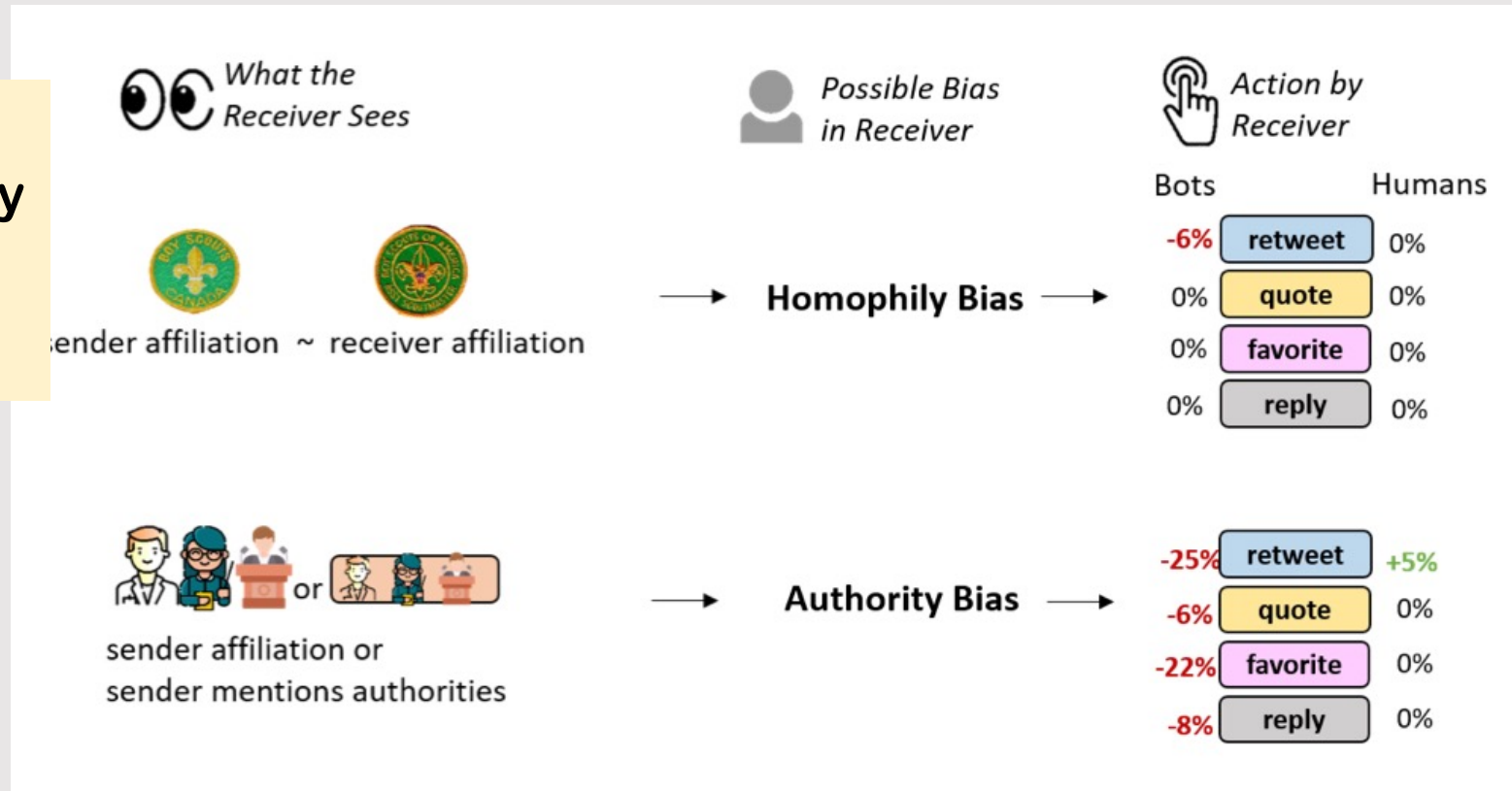


# Bots have consistent relationship between engagement and number of biases



# Impact of bias triggers on engagement

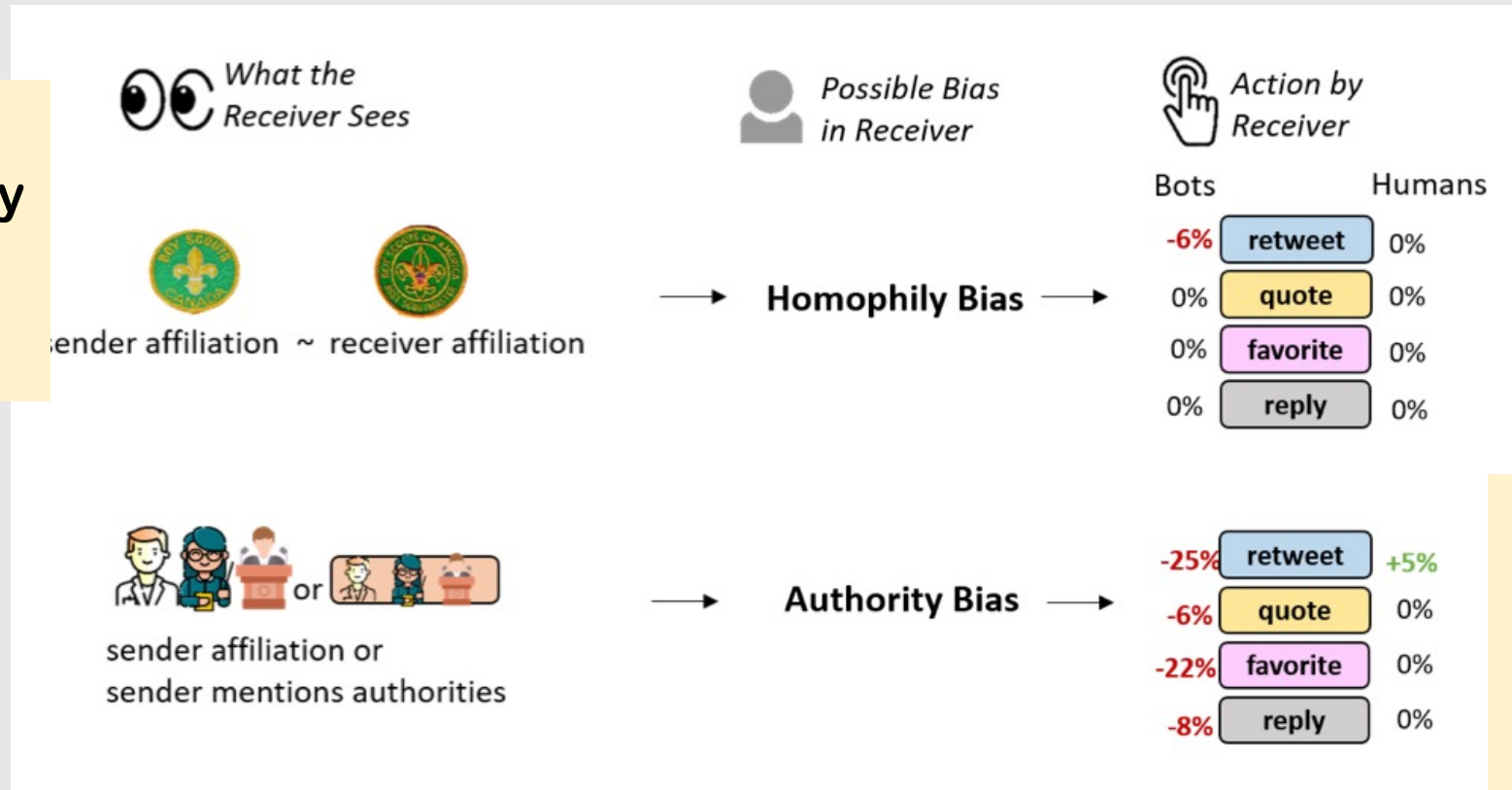
Group similarity  
doesn't quite  
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# Impact of bias triggers on engagement

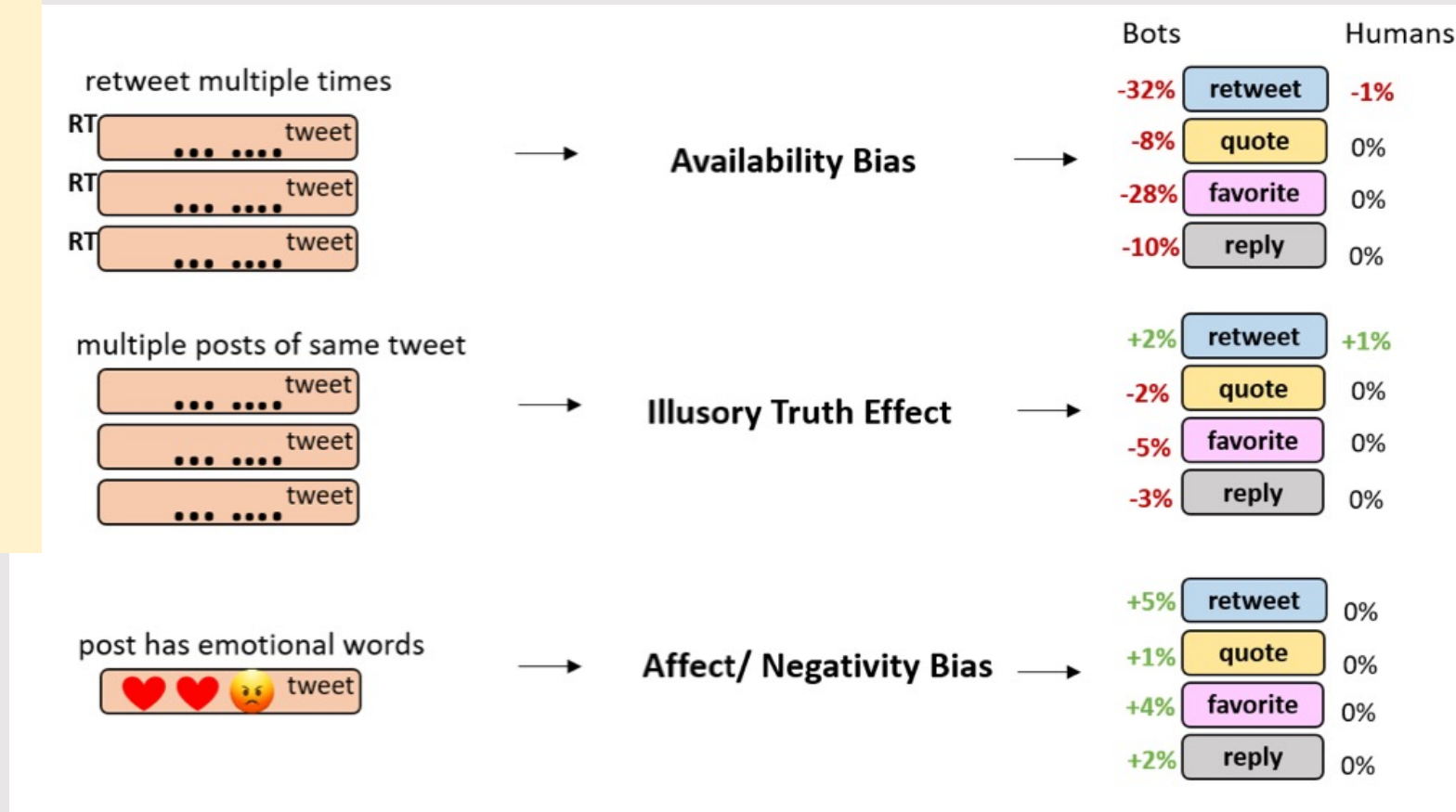
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People often  
reject explicit  
authority

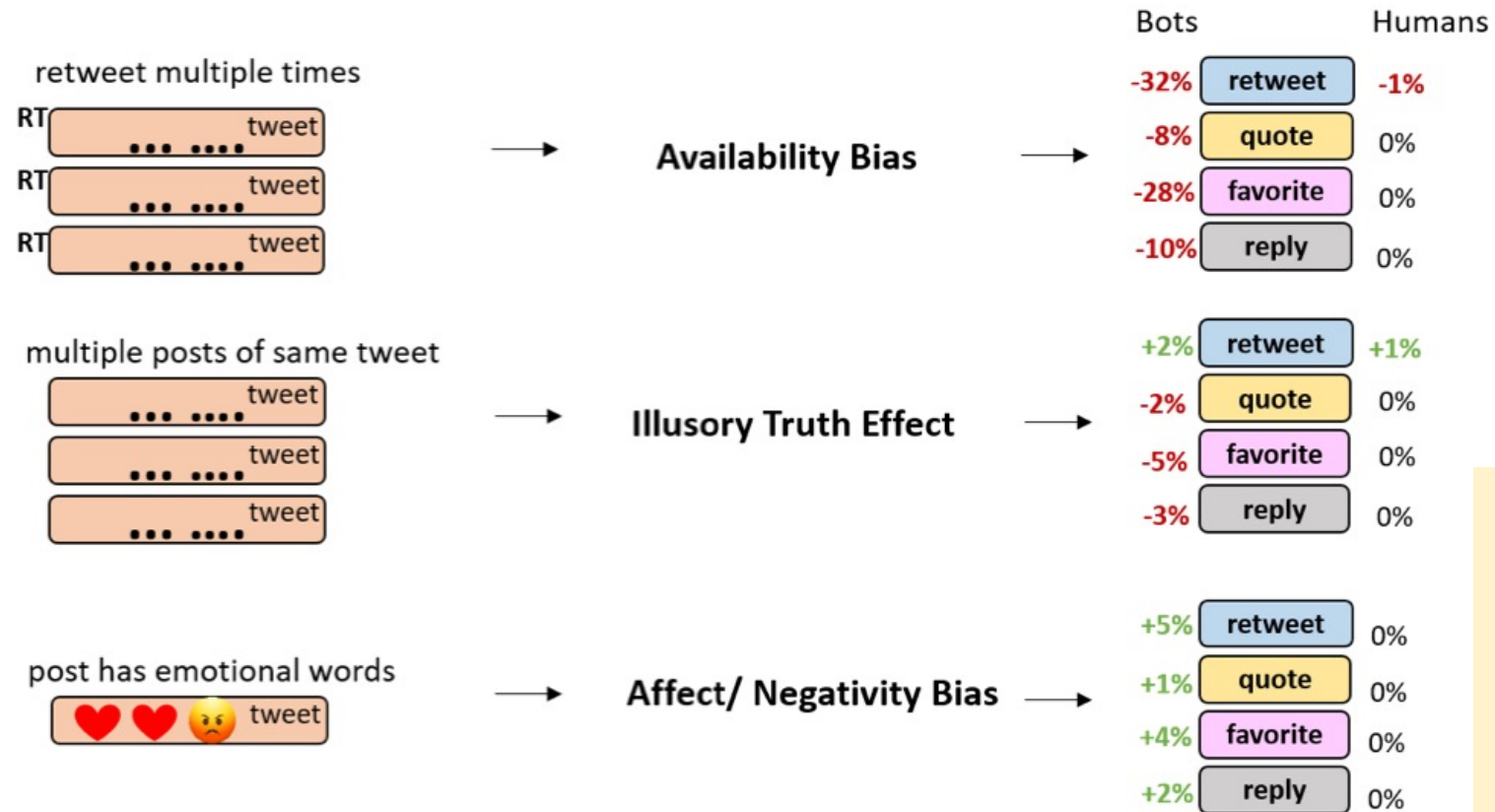
# Impact of bias triggers on engagement

Too much  
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# Impact of bias triggers on engagement

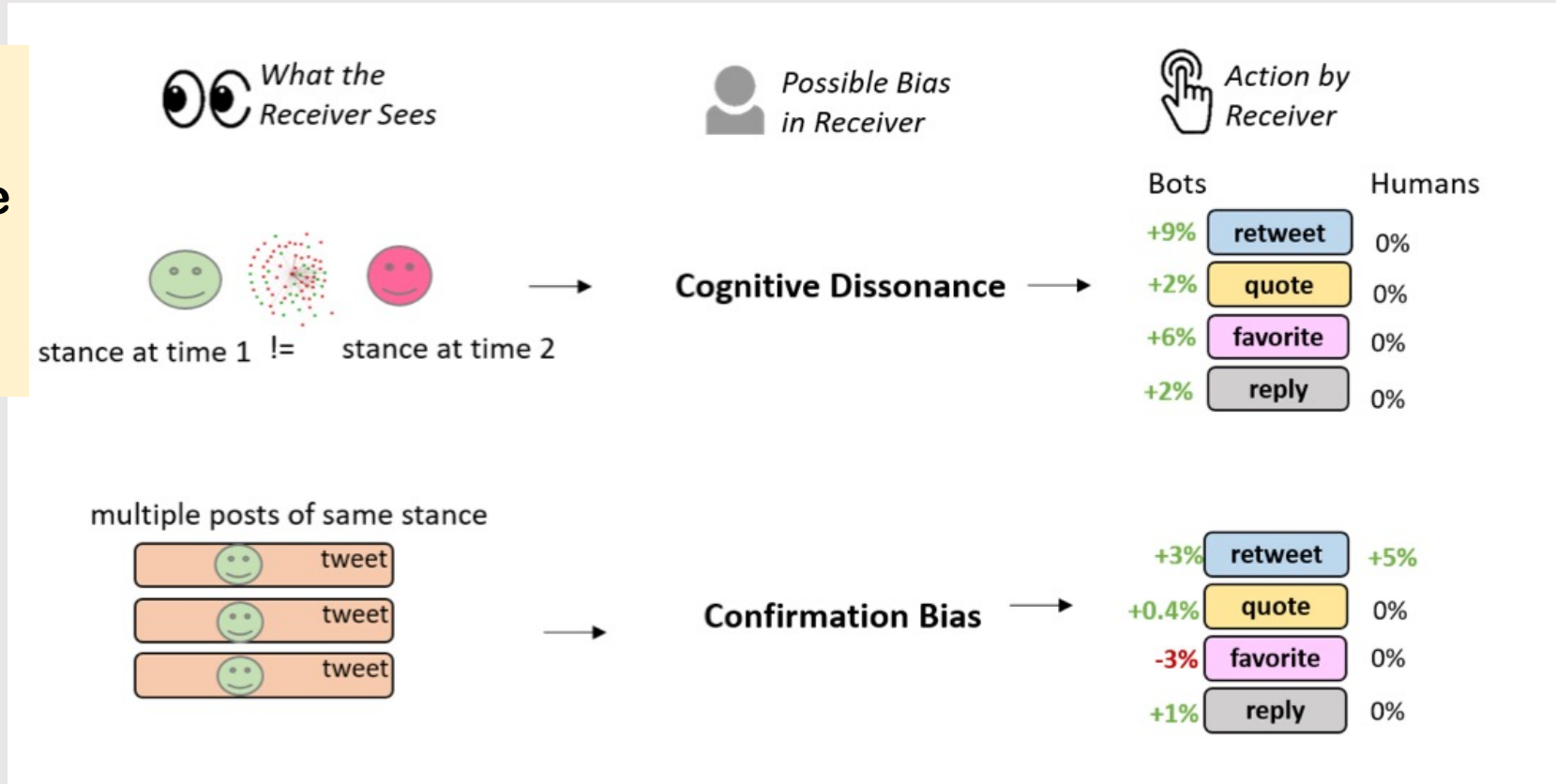
Too much information causes cognitive overload, too repetitive



Emotional appeal increases engagement

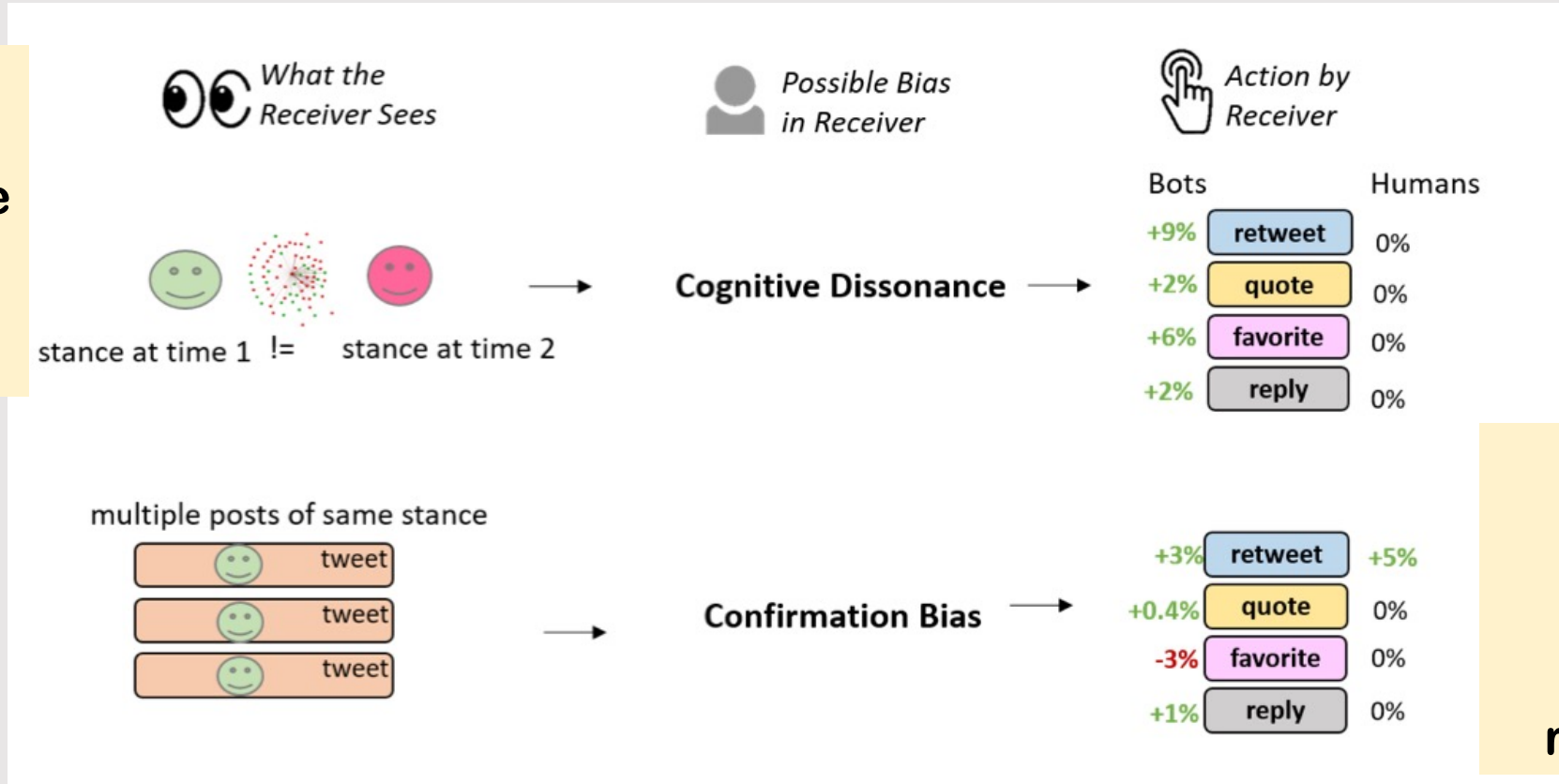
# Impact of bias triggers on engagement

People are more receptive to others that try to fit in



# Impact of bias triggers on engagement

People are more receptive to others that try to fit in



People like reassurance

# Future Work

- Simulate temporal dynamics:
  - If I want to achieve 100 likes in 3 days, what biases must I induce?

# Takeaways

- Persuasion on social media platform can trigger cognitive biases
- Some triggers of cognitive biases increase engagement
- Bots are more consistent engagement results from bias triggers

# Lynnette Hui Xian Ng

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Website: [quarbby.github.io](https://quarbby.github.io)

Paper link:



Website link:





