

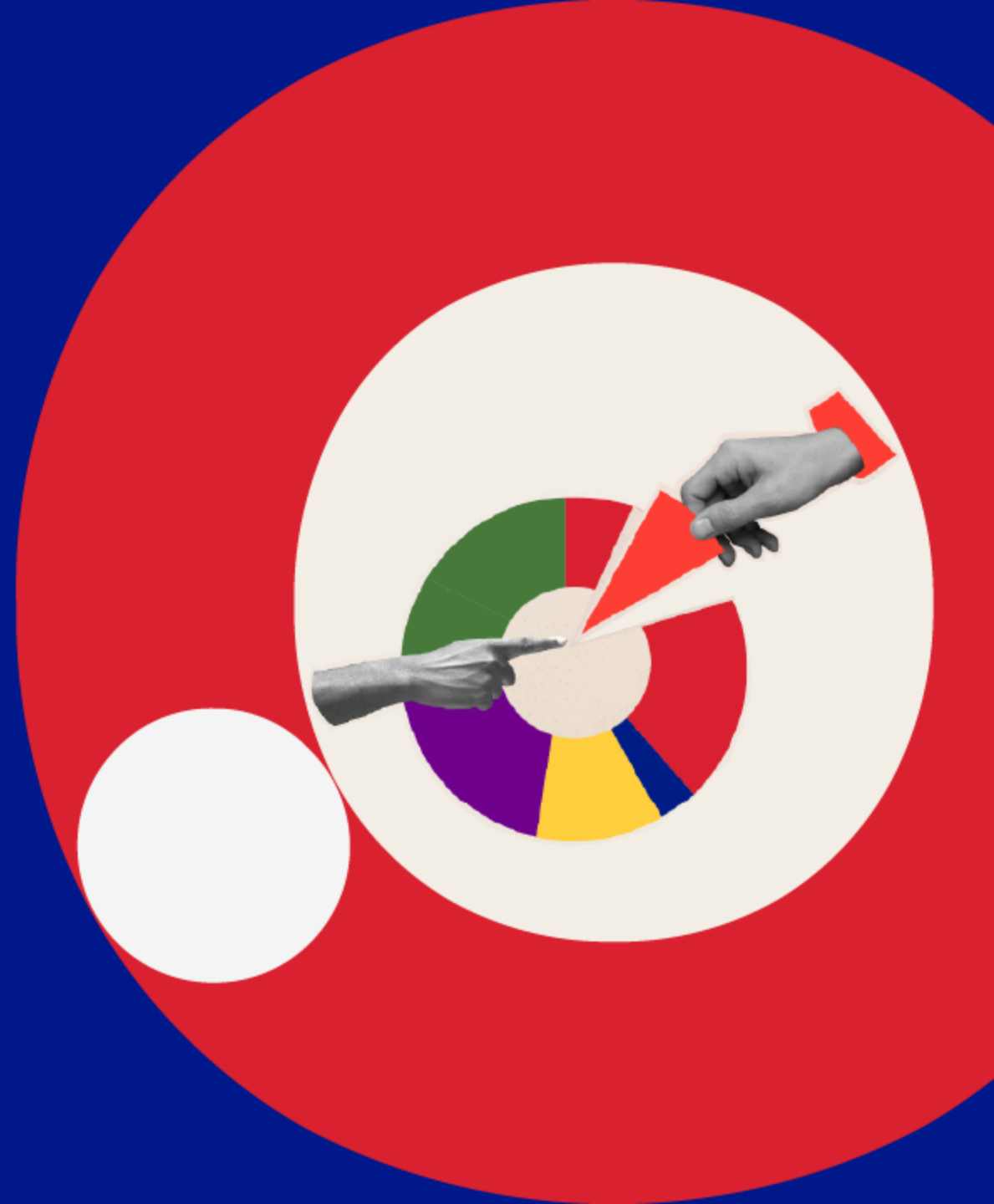
WEBINAR

# Open data, academia, and ethics: fostering trust through data- based reasoning

data.  
europa  
academy

27 March 2026

10:00 – 11:00 CET



# Rules of the game



The webinar will be recorded and published on the data.europa academy



For questions, please use the ClickMeeting chat



Please reserve 3 min after the webinar to help us improve by filling in our feedback form



# Today's speakers



**Hannah Kroker**  
European Data Portal,  
Publications Office of the EU



**Dr Elfia Bezou-Vrakatseli**  
Postdoctoral Researcher  
at Inria, Affiliate at  
King's Institute for AI



**Dr Ameer Sadaat-Yazdi**  
Postdoctoral Researcher  
at Inria



# Agenda

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10.00 – 10.05

Opening and introduction – *Hannah Kroker*

10.05 – 10.25

Spotting manipulation in data-based arguments – *Dr. Elfia Bezou Vrakatseli*

10.25 – 10.45

How misleading or weak forms of reasoning can arise – *Dr. Ameer Sadaat-Yazdi*

10.45 – 11.00

Q&A and closing remarks



The background features a complex network of thin red lines connecting various 3D cubes of different sizes and orientations. The cubes are rendered in shades of black, dark grey, and light grey, creating a sense of depth and connectivity. The overall aesthetic is futuristic and data-driven, with a color palette dominated by reds, greys, and blacks.

# From Transparent Data to Transparent Reasoning

# What is argumentation?



<https://www.menti.com/alk7c7hk4kev>

# Open Data



## Transparency

- Makes decisions auditable
- Builds public *trust* through verifiable facts
- Improves *accountability* across institutions
- AI value alignment



## Accessibility

- Equal access for citizens, media, and researchers
- Supports inclusion and fairness



## Innovation & reuse

- Enables new products, services, and insights
- Creates interpretability across systems
- Helps reproducibility

A collection of social media icons on 3D blocks. The icons include Facebook (f), LinkedIn (in), X (Twitter), Snapchat (ghost), Instagram (camera), and Telegram (paper plane). The background is a dark blue gradient with a teal circle behind the icons. A yellow vertical bar is in the top right corner.

# Misinformation



Misinformation

Manipulation

Hate Speech

# Hate Speech



Fact-checkable hate speech  
has worse impact [1]

[1] Bezou-Vrakatseli et al. 2025. 'Fact-check the fact-checkable'. In *Proceedings of the 20<sup>th</sup> Conference Of Misinformation*.



Fact check the  
fact-checkable

# Hate Speech



Fact-checkable hate speech has worse impact [1]

[1] Ocampo et al. 2025. 'From Hidden to Harmful: Connecting Implicit and Explicit Hate Through Implied Statements'. In *WI-IAT 2025-24th IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology*.

# Hate Speech



Fact-checkable hate speech has worse impact [1]



Sometimes components are not hateful, but the conclusion is [1]

[1] Ocampo et al. 2025. 'From Hidden to Harmful: Connecting Implicit and Explicit Hate Through Implied Statements'. In *WI-IAT 2025-24th IEEE/WIC International Conference on Web Intelligence and Intelligent Agent Technology*.



Immigration increased over the last five years.

Housing costs also increased over the last five years.

Therefore, immigrants are causing the housing crisis.



Immigration increased over the last five years.

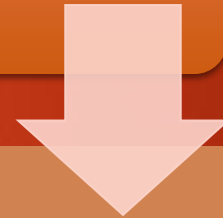
Housing costs also increased over the last five years.

Therefore, immigrants are causing the housing crisis.

What is the *reasoning* behind this?

# The Importance of Reasoning

Transparency via  
accessible data



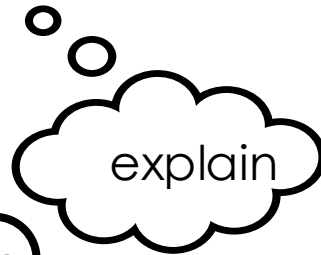
Transparency via  
how data is *linked*

A close-up photograph of a hand with red string tied around the fingers in a complex, crisscrossing pattern. The string forms a series of loops and crossings, resembling a braid or a complex knot. The background is blurred, showing a light-colored surface. A semi-transparent dark red rectangular overlay is positioned on the left side of the image, partially covering the hand. The text 'Argumentation Theory' is centered over the hand and the red overlay.

# Argumentation Theory

# What is an argument? Why do we argue?

- ▶ “A statement, reason, or fact for or against a point” <sup>1</sup>
- ▶ “A course of reasoning aimed at demonstrating truth or falsehood” <sup>2</sup>
- ▶ “A discussion involving differing points of view” <sup>3</sup>
- ▶ “An address or composition intended to convince or persuade” <sup>4</sup>



1. <http://www.dictionary.com/browse/argument>  
2. <https://www.thefreedictionary.com/argument>  
3. <http://www.dictionary.com/browse/argument>  
4. <http://www.dictionary.com/browse/argument>



# Internal Reasoning

Information processing  
Reasoning about beliefs, goals, intentions





I will go left because left is the fastest route.



I will go left because left is the fastest route.



Premise: *Left is the fastest route.*  
Conclusion: *I will go left.*

I will go left because left is the fastest route.



Premise: *Left is the fastest route.*

Conclusion: *I will go left.*

Inference rule: *I want to take the fastest route.*

I will go left because left is the fastest route.

Commonsense  
reasoning is  
defeasible



# Commonsense reasoning: **defeasible**

- Inconsistent Information
- Knowledge often uncertain or incomplete
  - Conclusions under assumptions
  - Retract conclusions once we learn an assumption is unwarranted



# Defeasible reasoning

- Real-world reasoning
- Dynamic
- Non monotonic logic
- No logical paradoxes





Actually, today I will go right because there is an obstacle on the left.

# Interaction with other agents





When is something a rule and when is it an association?



Premise 1: Immigration increased over the last five years.

Premise 2: Housing costs also increased over the last five years.

Conclusion: Therefore, immigrants are causing the housing crisis.

# Strict and defeasible rules

## Strict Rules

If A and B then **always** C

All tuba players are mortal.

I am a tuba player.

 I am mortal.

# Strict and defeasible rules

## Strict Rules

If A and B then **always** C

All tuba players are mortal.  
I am a tuba player.

 I am mortal.

## Defeasible rules

If A and B then **usually** C

After complaints, I don't play the tuba.  
Neighbours complained.

 I don't play the tuba...

# Strict and defeasible rules

## Strict Rules

If A and B then **always** C

All tuba players are mortal.  
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## Defeasible rules

If A and B then **usually** C

After complaints, I don't play the tuba.  
Neighbours complained.

 I don't play the tuba...

Unless I have a concert.

# Strict and defeasible rules

## Strict Rules

If A and B then **always** C

All tuba players are mortal.  
I am a tuba player.

 I am mortal.

Logical  
Deductions

## Defeasible rules

If A and B then **usually** C

After complaints, I don't play the tuba.  
Neighbours complained.

 I don't play the tuba...

Unless I have a concert.

Exceptions  
&  
Updates

# Walton's Argument Schemes [1]

*Schools should close during the Covid-19 pandemic  
because that would reduce the rate of infection of  
Covid-19.*

## **Argument from Positive Consequences**

- **Premise:** If A is brought about, good consequences will occur.
- **Conclusion:** Therefore A should be brought about.

# Walton's Argument Schemes [1]

## Critical Questions

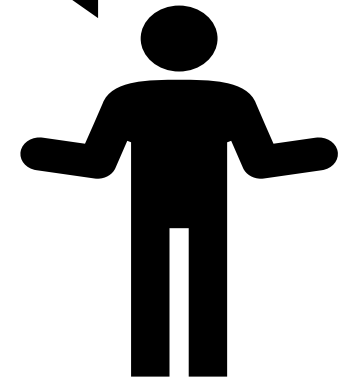
*Schools should close during the Covid-19 pandemic*

*because that would reduce the rate of infection of Covid-19.*

### **Argument from Positive Consequences**

- **Premise:** If A is brought about, good consequences will occur.
- **Conclusion:** Therefore A should be brought about.

What evidence supports the claim that the cited consequences will occur and is it sufficient to support the strength of the claim adequately?



# Walton's Argument Schemes [1]

## Critical Questions

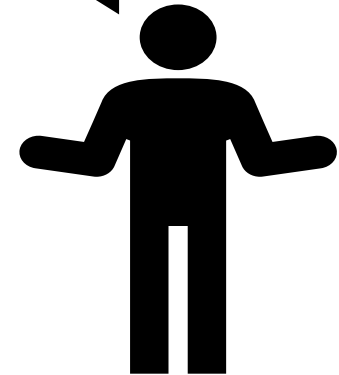
*Schools should close during the Covid-19 pandemic*

*because that would reduce the rate of infection of Covid-19.*

### **Argument from Positive Consequences**

- **Premise:** If A is brought about, good consequences will occur.
- **Conclusion:** Therefore A should be brought about.

How strong is the likelihood that the cited consequences will (may, must) occur?



# Walton's Argument Schemes [1]

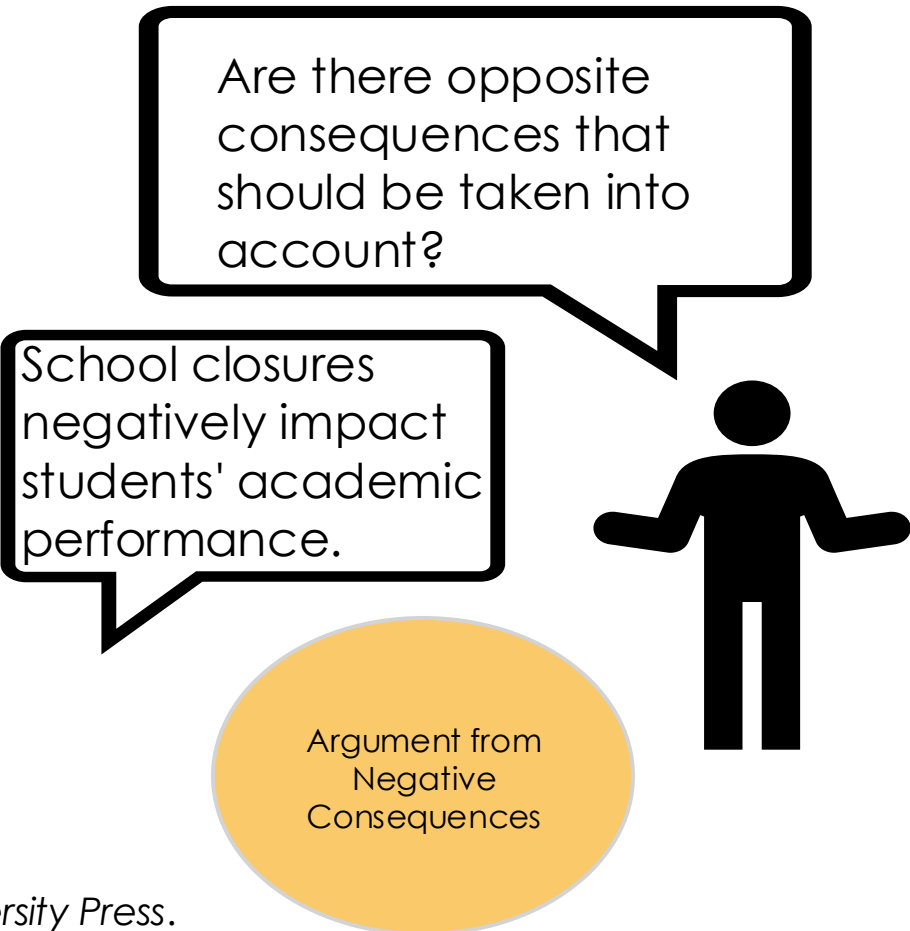
## Critical Questions

*Schools should close during the Covid-19 pandemic*

*because that would reduce the rate of infection of Covid-19.*

### **Argument from Positive Consequences**

- **Premise:** If A is brought about, good consequences will occur.
- **Conclusion:** Therefore A should be brought about.



[1] Walton et al., 2008. "Argumentation schemes". Cambridge University Press.

# Popular Schemes [1]

Argument  
from expert  
opinion

Argument  
from  
example

Argument  
from  
analogy

Argument  
from cause  
to effect

Argument  
from  
alternatives

[1] Bezou-Vrakatseli, Cocarascu, Modgil, 2024. "EthiX: A Dataset for Argument Scheme Classification in Ethical Debates". In *Proceedings of the 27th European Conference on Artificial Intelligence (ECAI 2024)*.



Premise 1: Immigration increased over the last five years.

Premise 2: Housing costs also increased over the last five years.

Conclusion: Therefore, immigrants are causing the housing crisis.

Inference Rule?



Premise 1: Immigration increased over the last five years.

Premise 2: Housing costs also increased over the last five years.

Conclusion: Therefore, immigrants are causing the housing crisis.

Rule: Things that are correlated are causally related.



Premise 1: Immigration increased over the last five years.

Premise 2: Housing costs have increased over the last five years.

Conclusion: Therefore, immigrants are causing a housing crisis.

Things that are correlated are causally related.

Good data + Bad rule = Bad argument

# Schemes often fallacious

Ad  
hominem

False  
dilemma

Slippery  
slope

Hasty  
generalization

# Schemes often fallacious

Ad  
hominem

False  
dilemma

Slippery  
slope

Hasty  
generalization

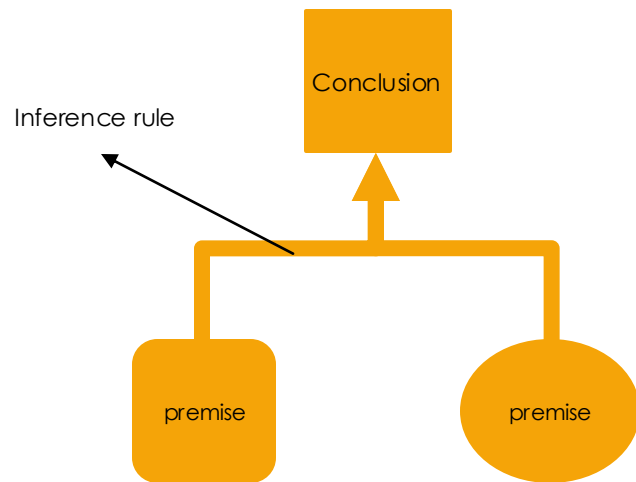
**Fallacies can arise from ambiguity [1].**



Enthymemes:

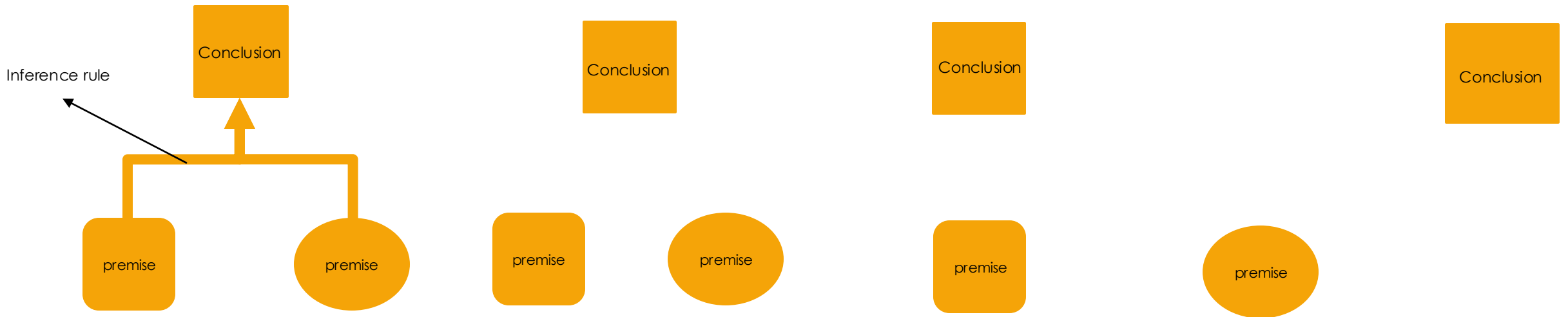
arguments with incomplete logical structure

# Enthymemes: arguments with incomplete logical structure

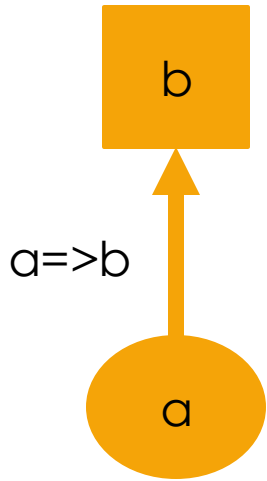


Complete Argument

# Enthymemes: arguments with incomplete logical structure



# Enthymemes: arguments with incomplete logical structure



It's raining outside. (a)

Take an umbrella with you. (b)

If it's raining outside, then take an umbrella with you. ( $a \Rightarrow b$ )

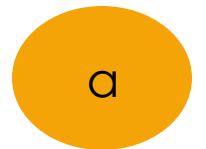


It's raining outside.

Take an umbrella with you.



Take an umbrella with you.



It's raining outside.

# Enthymemes

## Backward extension



Take an umbrella with you.

# Enthymemes

## Backward extension

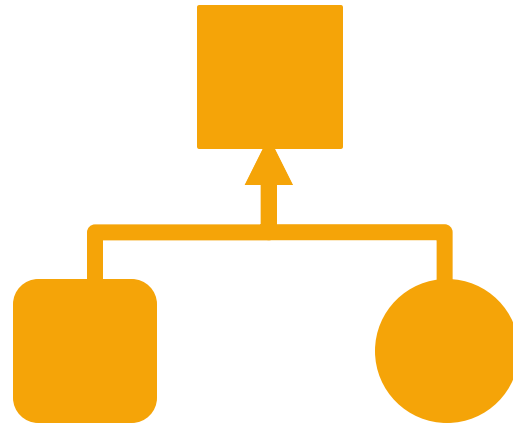
Locutions: why, because



# Enthymemes

## Backward extension

Locutions: why, because



Take an umbrella with you.

Why?

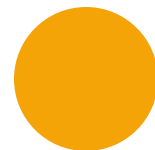
Because it is raining

# Enthymemes

## Forward extension



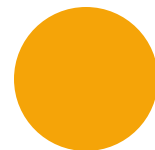
It is raining.



# Enthymemes

## Forward extension

Locutions: and-so, hence



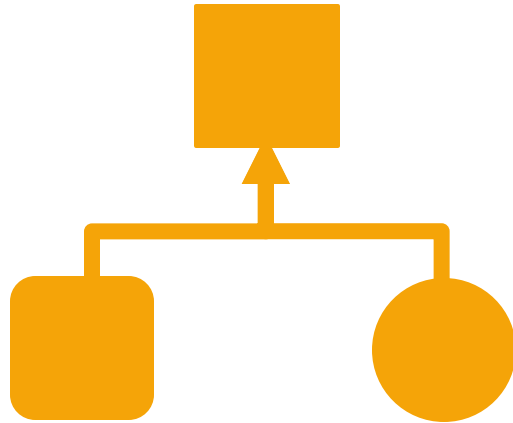
It is raining.

So?

# Enthymemes

## Forward extension

Locutions: and-so, hence



It is raining.

So?

Take an umbrella

So...



What is the argument? Is it complete?



How can I elicit the implicit elements?



What is the inference rule of the argument?



Is it a strict or a defeasible rule?



What questions can I use to challenge this type of reasoning?



Is it a fallacy?



Thank you!

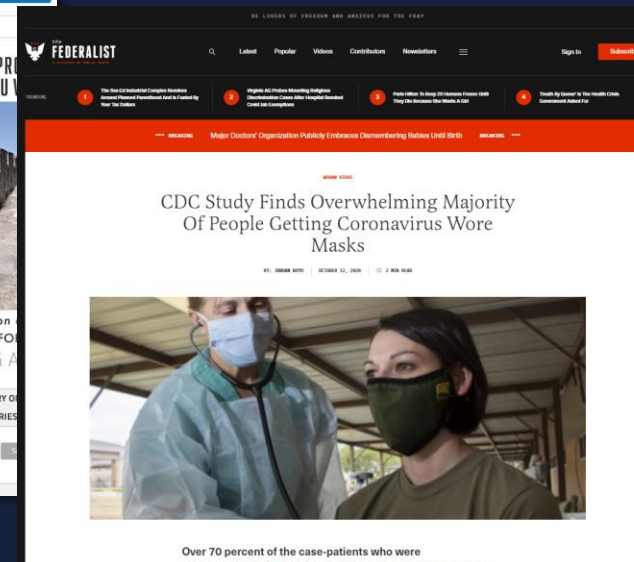
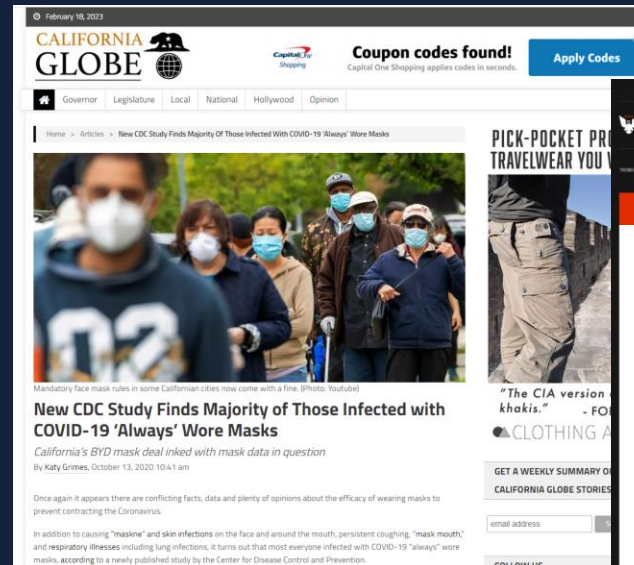
Curious for more argumentation?  
Get in touch: [elfia.bezou-vrakatseli@inria.fr](mailto:elfia.bezou-vrakatseli@inria.fr)

**STUDIES SHOW THAT  
WHATEVER I SAID IS  
TRUE**

Source-Based Arguments and  
Citation Misuse

# THE ILLUSION OF EVIDENCE<sup>1</sup>

In October 2020 the CDC (The United States Center for Disease Control) released a study that showed 85% of people who tested positive for covid said they wore masks



“

*But just the other day, [the CDC] came out with a statement that 85% of the people that wear masks catch [Covid].*

”

---

— Donald Trump, October 2020



CDC  · Oct 14, 2020

@CDCgov · [Follow](#)

Replying to @CDCgov

A recent @CDCMMWR looking at exposures among people w/ and w/o #COVID19 also assessed rates of mask use. However, the interpretation that more mask-wearers are getting infected compared to non-mask wearers is incorrect. [bit.ly/MMWR91020b](https://bit.ly/MMWR91020b)



CDC 

@CDCgov · [Follow](#)

People w/ and w/o #COVID19 had high levels of mask use in public. Even for those who always wear a mask, there are activities where masks can't be worn, like eating or drinking. People w/ COVID-19 were more likely to have eaten in a restaurant.

2:00 PM · Oct 14, 2020



See the latest COVID-19 information on Twitter

[Read 24 replies](#)


# BIG QUESTIONS

**01** What does misinformation look like?

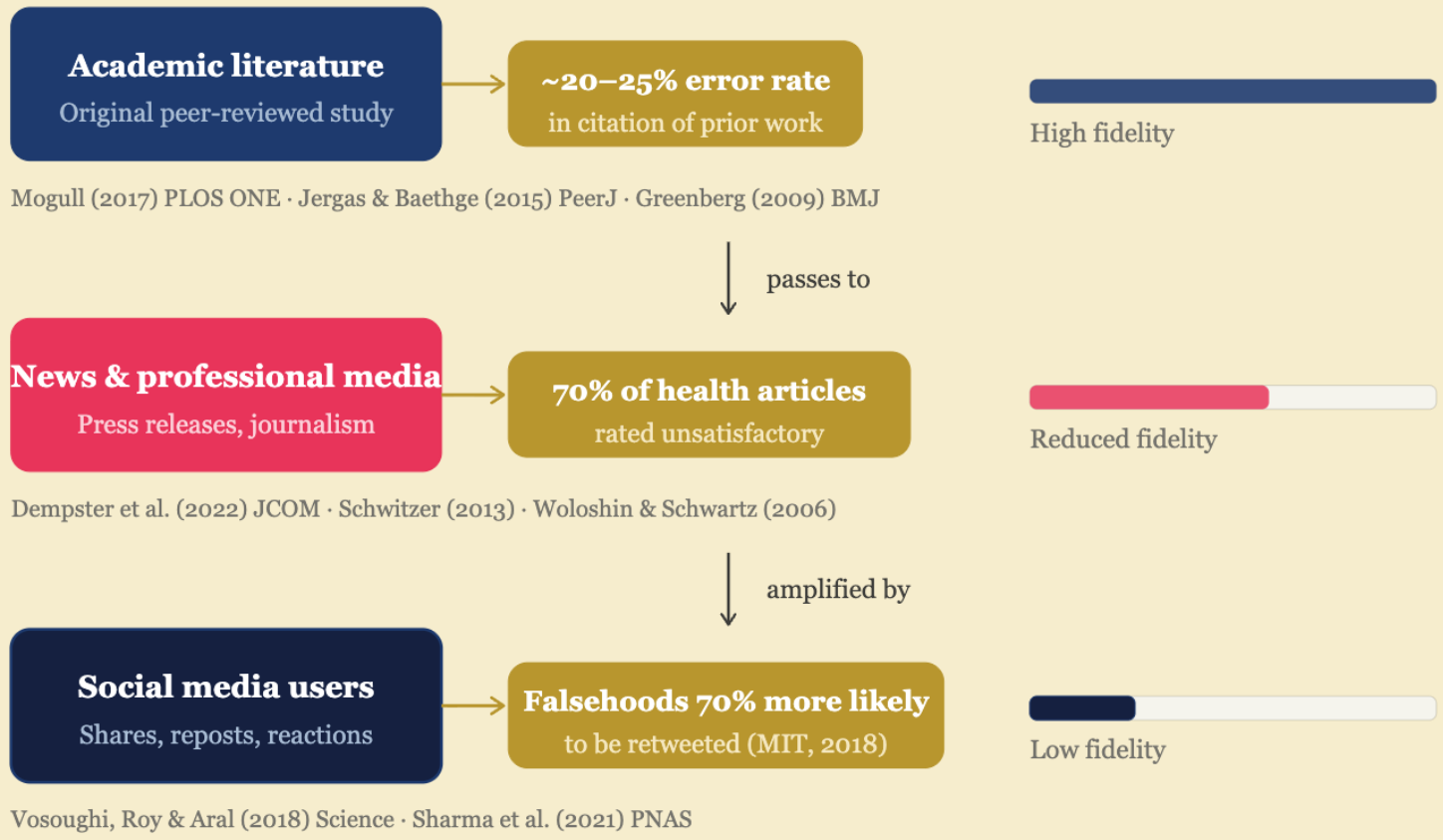
**02** How can argumentation help in identifying misinformation?

**03** What can (and can't) technology do?

**04** What else can we do?



**What does  
misinformation  
look like?**




**Each retelling compounds distortion — a scientific Chinese whispers**  
Original nuance, caveats and limitations are progressively lost at every stage

## WHAT IS MISINFORMATION MADE OF?

- Fact-checkers rate most viral claims as **neither true nor false**
- A 2022 study<sup>1</sup> looked the reasoning mechanisms behind misinformation
- Misinformation follows **predictable, nameable patterns**: cherry picking, misdirection and false burden of proof

**Misinformation is not lies — it's bad arguments\***

1. Musi, E., & Reed, C. (2022). From fallacies to semi-fake news: Improving the identification of misinformation triggers acrossdigital media.



*Fallacies aren't random noise — they're the mechanism  
by which grey-area misinformation works.*

”


---

— Musi & Reed (2022)

The background features a dark blue field with several overlapping geometric shapes. A large, light cream-colored circle is centered in the upper half. To its right, a thick gold ring is partially visible. In the bottom left corner, a gold triangle points upwards. The text is centered within the cream circle.

# FALLACIES

*What bad arguments look like — and why they work*



*There is no such thing as a classification of the ways in which men may arrive at an error: it is much to be doubted whether there ever can be.*

”

---

— Augustus de Morgan

# WHAT IS A FALLACY?

! A fallacy constitute[s] or express[es] an argument that seems valid but is not<sup>1</sup>

👤 A fallacy can be made up of true statements, and does not have to be done intentionally

Global warming is real because basically everyone agrees it is.



1. C. L. Hamblin, *Fallacies* (Methuen & Co. Ltd., 1970)

# TECHNOLOGY

*Can automated tools solve the misinformation problem?*

# FACT CHECKING



CLAIM  
DETECTION



EVIDENCE  
RETRIEVAL



VERDICT  
PREDICTION



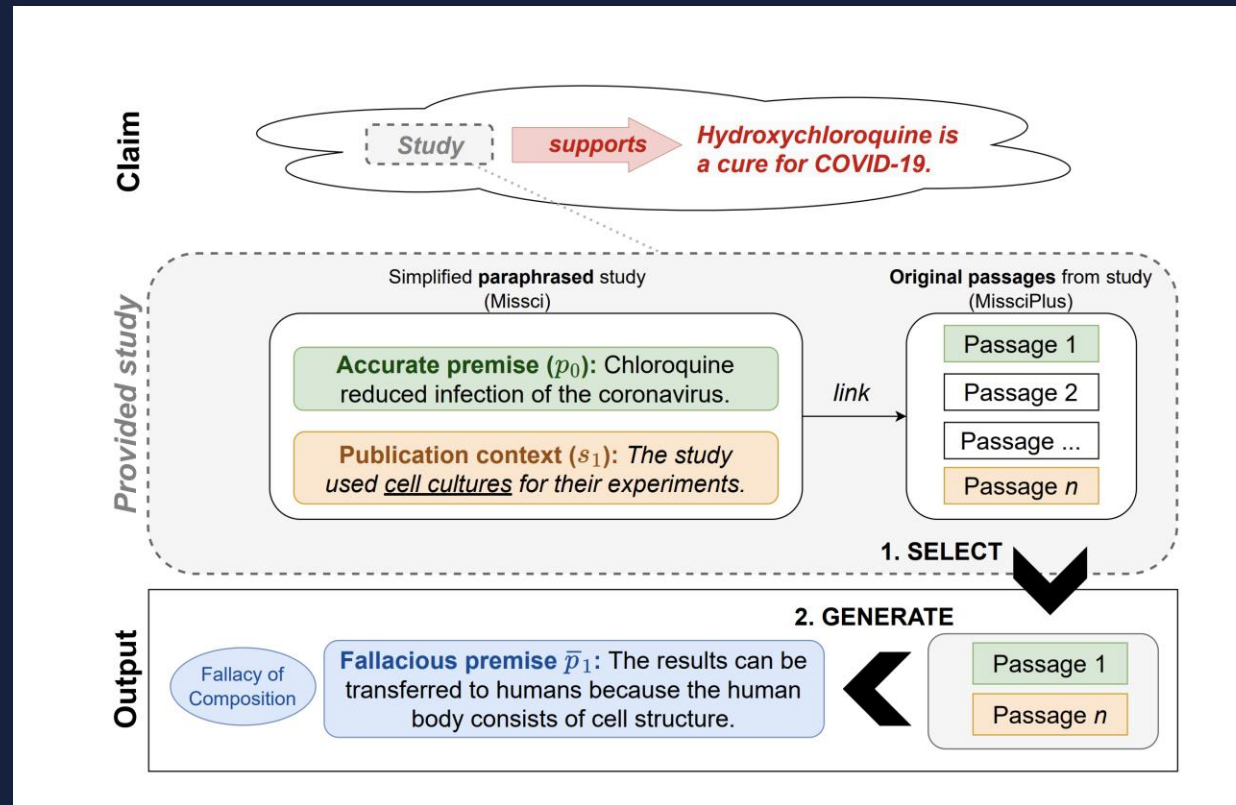
JUSTIFICATION  
PRODUCTION

## WHAT ARE THE LIMITATIONS?

- Requires access to a repository of ‘truth’
- Very little work done on scientific fact-checking
- Inference is really hard
- No clear guidelines to generate verdict justifications

*“Most existing datasets do not contain textual explanations provided by journalists as justification for verdicts”*  
— Guo et. al, 2022

# GROUNDING FALLACIES MISREPRESENTING SCIENTIFIC PUBLICATIONS IN EVIDENCE<sup>1</sup>

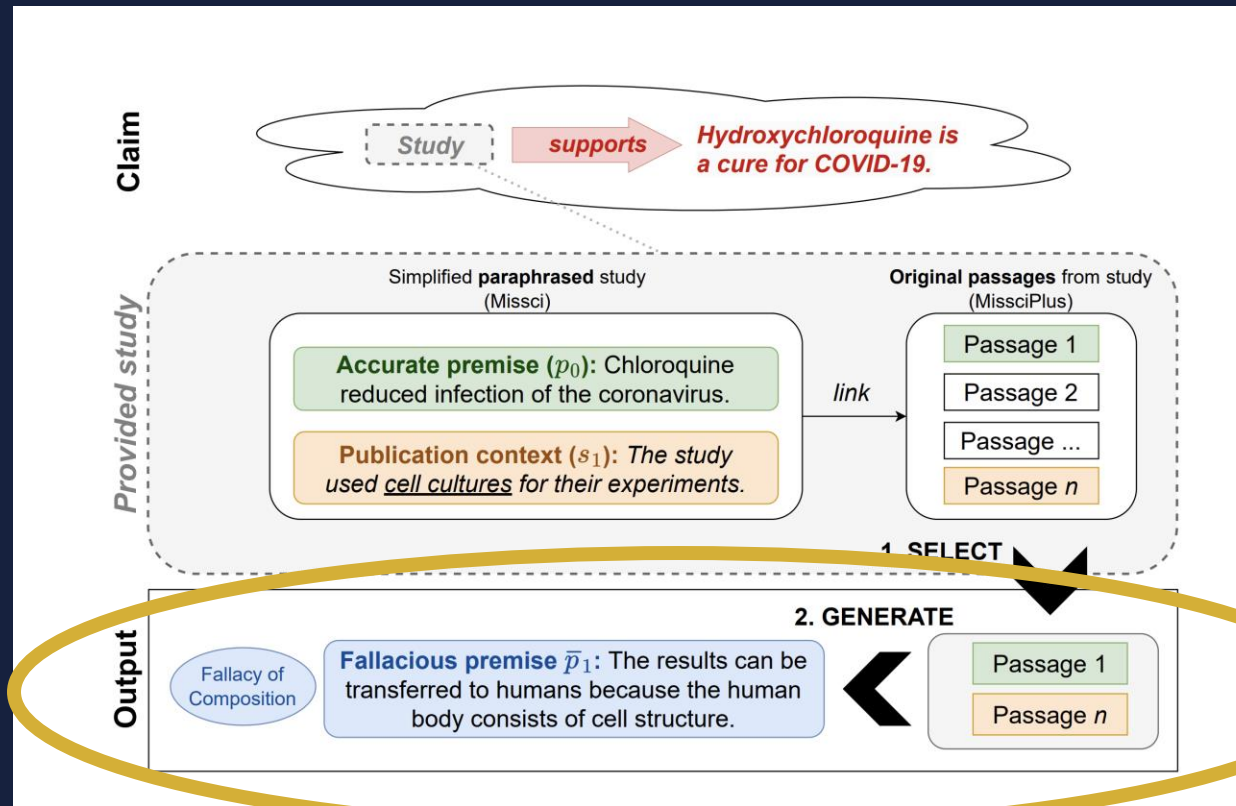


Chat-GPT and GPT-like models

**DOES IT WORK?**



# GROUNDING FALLACIES MISREPRESENTING SCIENTIFIC PUBLICATIONS IN EVIDENCE<sup>1</sup>



Language models and chat-bots are not reasoners!



# SOLUTIONS

*What can we actually do about it?*

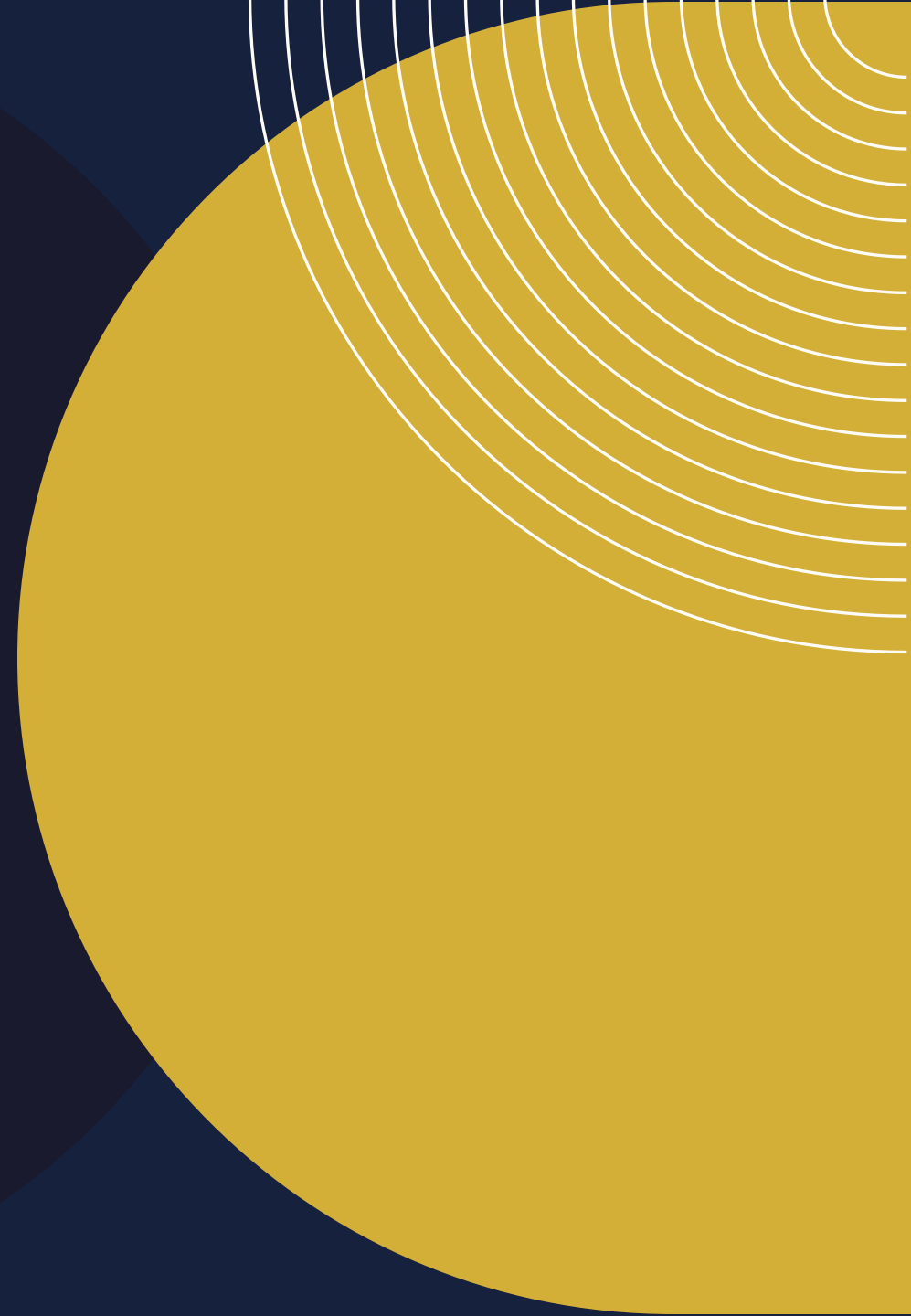
# HUMAN MODERATION AND COMMUNITY ENGAGEMENT

- Intelligent and active moderation has been shown time and again to improve the quality of argumentation in social fora
- Not just professional moderators, but all users can contribute<sup>1</sup>

# INOCULATION AND PREBUNKING

- Study based on the *Bad News* game:
  - Players enter a fictional social media environment and "walk a mile" in the shoes of a fake news creator
- Cross-cultural experiments across found significant and meaningful reductions in the perceived reliability of manipulative content<sup>1</sup>

**READ  
WHAT  
YOU  
CITE!**



# Thank You

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Questions? Reach out:

[ameer.saadat@inria.fr](mailto:ameer.saadat@inria.fr)

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# Q&A Session



**Hannah Kroker**  
European Data Portal,  
Publications Office of the EU



**Dr. Elfia Bezou-Vrakatseli**  
Postdoctoral Researcher  
at Inria, Affiliate at  
King's Institute for AI



**Dr. Ameer Sadaat-Yazdi**  
Postdoctoral Researcher  
at Inria



Stay up-to-date on our  
2026 activities!

The logo for Data Europa Academy is located in the bottom left corner. It consists of the words "data", "europa", and "academy" stacked vertically in a white, lowercase, sans-serif font. The word "data" has a small orange dot above the 'a', and "europa" has a small orange dot above the 'o'. The word "academy" is in a smaller font size. The logo is set against a dark blue circular background, which is part of a larger graphic design featuring overlapping purple and blue circles and a white circle.

data.  
europa  
academy

# Register for our upcoming webinar!

**WEBINAR**

**'European data spaces in practice: insights from the Data Space for Skills'**



**data.europa academy**

10 April 2026  
10.00 – 11.00 CEST



# Continue the discussion after the webinar!

## Open data, academia, and ethics: fostering trust through data-based reasoning

Submitted by [Hannah KROKER](#) on Tue, 17/03/2026 - 08:59

Topic: [Academy webinars](#)

Did you appreciate our **first webinar on open data, academia, and ethics**? Continue the discussion about data-based reasoning and ethical considerations in the comments below!

Looking into the nuances of data-based reasoning, we learned that **even high-quality data can be used in research to manipulate others** from our guest Elfia Bezou Vrakatseli.

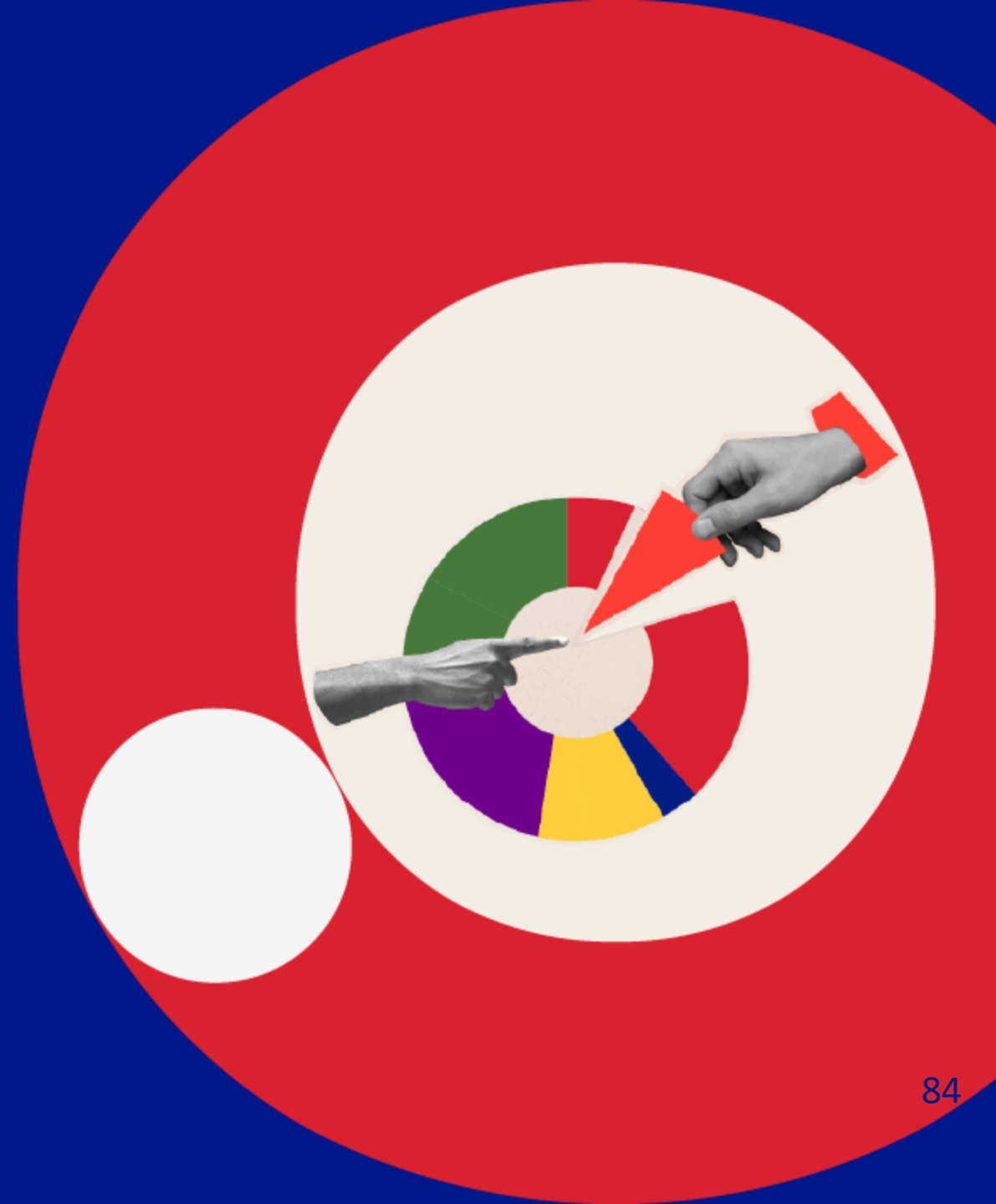
Moreover, Ameer Saadat-Yazdi highlighted what **distinguishes our reasoning from computers** and why this enables us to interact with complex data.

How can we spot such misleading uses of data in research and avoid falling into this pitfall ourselves? Do you have ideas about the necessary steps to improve computer reasoning to navigate real-world data more accurately?

**Let us know in the comments below!**



# Your opinion is important to us



# Thank you!

