# Towards constructive conversations

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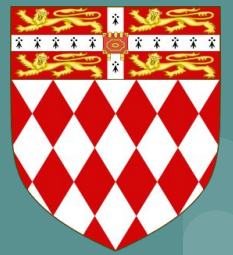
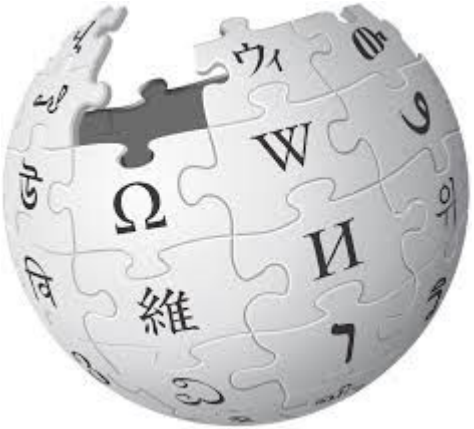
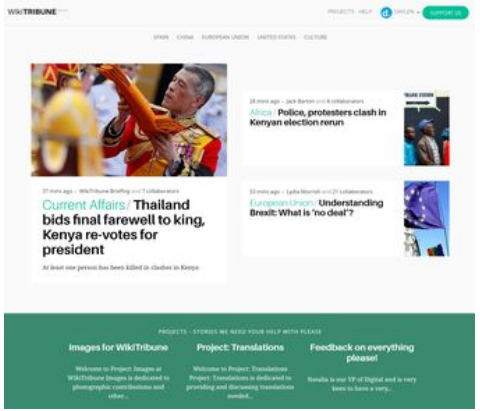


# Do you know these two logos?



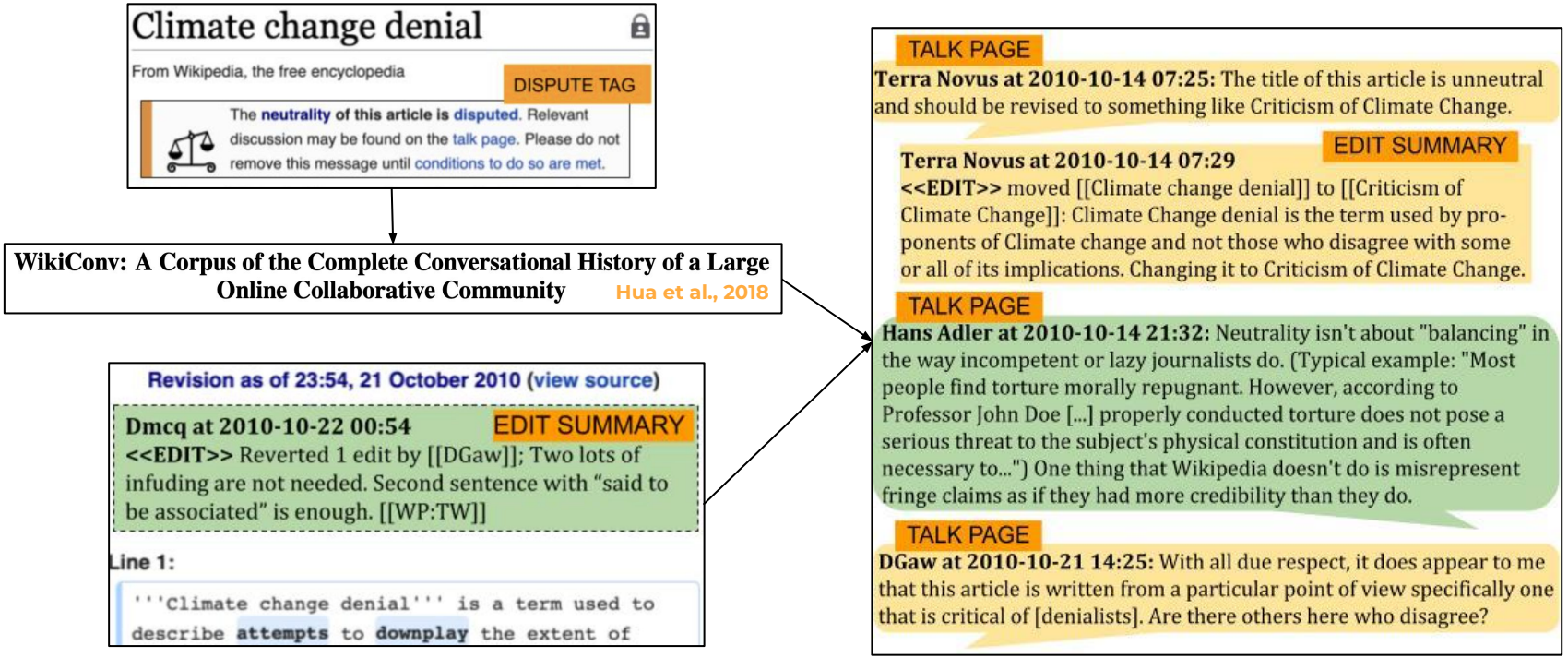
WikiTRIBUNE



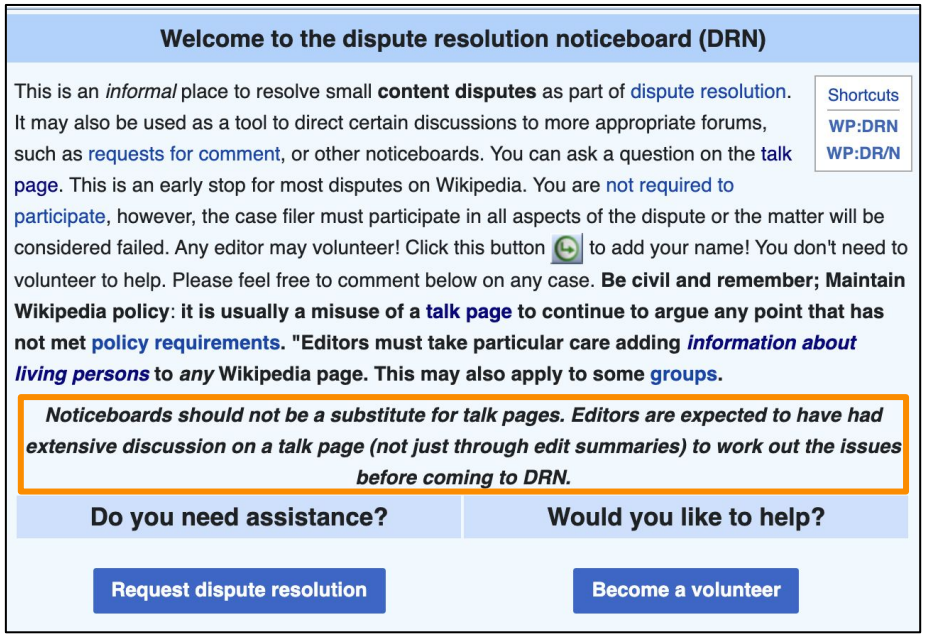

- Wikipedia: most successful large-scale online conversation
- Success not straightforward to replicate
- What can we learn from it?

# WikiDisputes (*De Kock and Vlachos, 2021*)

A corpus of 7 425 disagreements on Wikipedia Talk pages



# Predicting escalation



**Welcome to the dispute resolution noticeboard (DRN)**

This is an *informal* place to resolve small **content disputes** as part of dispute resolution. It may also be used as a tool to direct certain discussions to more appropriate forums, such as requests for comment, or other noticeboards. You can ask a question on the talk page. This is an early stop for most disputes on Wikipedia. You are not required to participate, however, the case filer must participate in all aspects of the dispute or the matter will be considered failed. Any editor may volunteer! Click this button to add your name! You don't need to volunteer to help. Please feel free to comment below on any case. **Be civil and remember; Maintain Wikipedia policy: it is usually a misuse of a talk page to continue to argue any point that has not met policy requirements. "Editors must take particular care adding *information about living persons* to *any* Wikipedia page. This may also apply to some groups.**

Shortcuts
WP:DRN
WP:DR/N

***Noticeboards should not be a substitute for talk pages. Editors are expected to have had extensive discussion on a talk page (not just through edit summaries) to work out the issues before coming to DRN.***

**Do you need assistance?** | **Would you like to help?**

Request dispute resolution | Become a volunteer

+ Escalation labels:
  - 201 **Escalated**
  - 7224 **Not escalated***

  *sub-sampled to correct for length imbalance

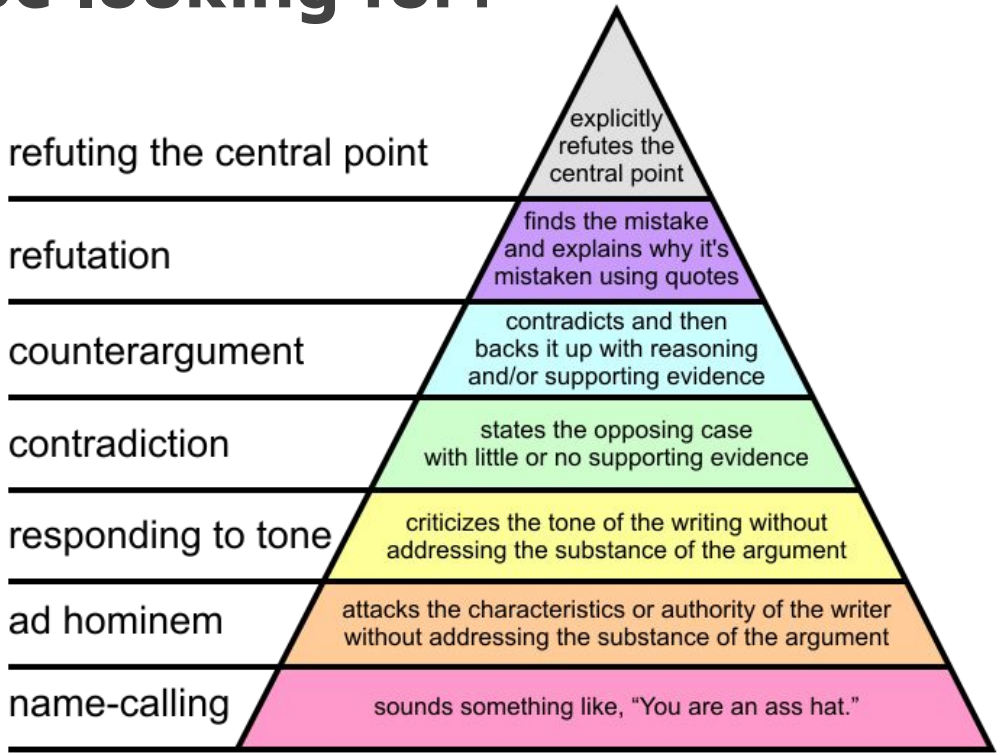
# What we might be looking for?

Wikipedia's guidelines for dispute resolution follow Graham's argument hierarchy

Is this what makes it work?

Other options:

- Politeness
- Toxicity (lack of)
- Sentiment



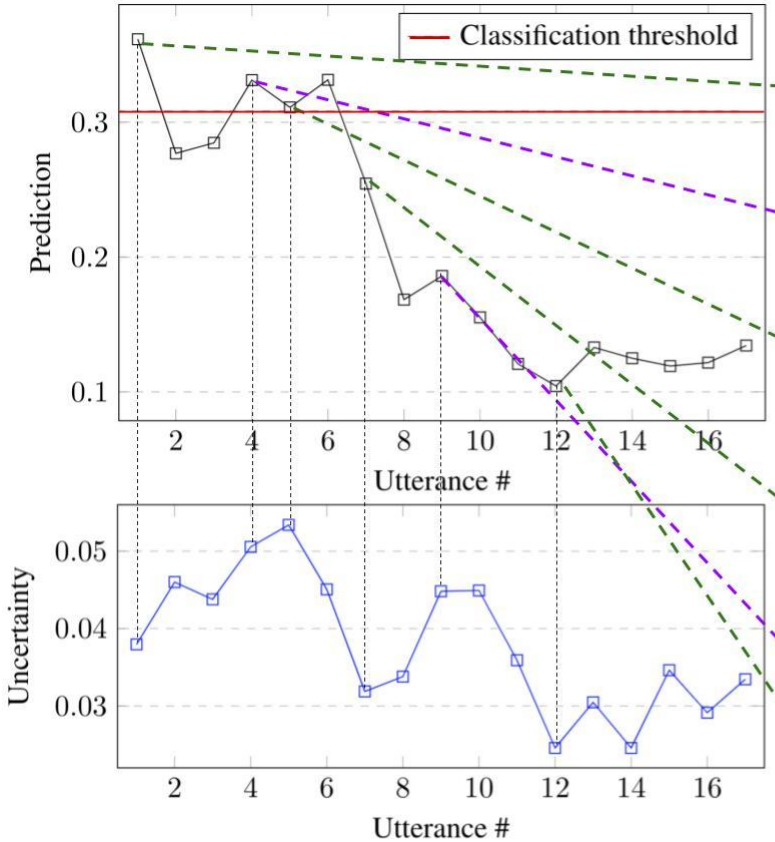
# Predicting escalation

## Feature-based models

- Toxicity: *Wulczyn et al. (2017)*
- Sentiment: *Liu et al. (2005)*
- Politeness: Zhang et al. (2018)
- Collaboration: *Niculae and Danescu- Niculescu-Mizil (2016)*
- +Gradients: how features change in conversation
- Neural models with dialogue structure perform best

| Model | PR-AUC |
|---|---|
| **Baselines** | |
| Random | 0.121 |
| Bag-of-words | 0.213 |
| **Feature-based models** | |
| Toxicity | 0.140 |
| Sentiment | 0.150 |
| Politeness | 0.232 |
| + *gradients* | 0.275 |
| Collaboration | 0.261 |
| + *gradients* | 0.269 |
| Politeness and collaboration | 0.255 |
| + *gradients* | 0.281 |
| **Neural models** | |
| Averaged embeddings | 0.243 |
| LSTM | 0.263 |
| HAN | 0.373 |
| + *edit summaries* | **0.400** |

# A cherry picked example from our model




**Ggugvunt at 2006-08-25 15:09:** The rest of this article is quite well written and reasonably NPOV, but the caption to the Canada picture reads like polemic to me.

**Frogsprog at 2006-08-25 15:12:** I would start by saying I am "very'" annoyed by american editors refusing to accept information that makes their country look unpopular.

**Ggugvunt at 2006-08-25 15:20:** First of all, you need to calm down a bit. Secondly, if you think the picture is so violent and strong, let it speak for itself.

**Ggugvunt at 2006-08-25 15:33:** Listen - my only issue is this: the caption sounded out of place with the reasonable tone of the rest of the article. Don't jump to conclusions - please. Can I revert it back to the non-adverbs version and remove the NPOV marker now?

**Frogsprog at 2006-08-25 18:11:** OK, a compromise, I will re-add the adverb "violently" but leave out strong

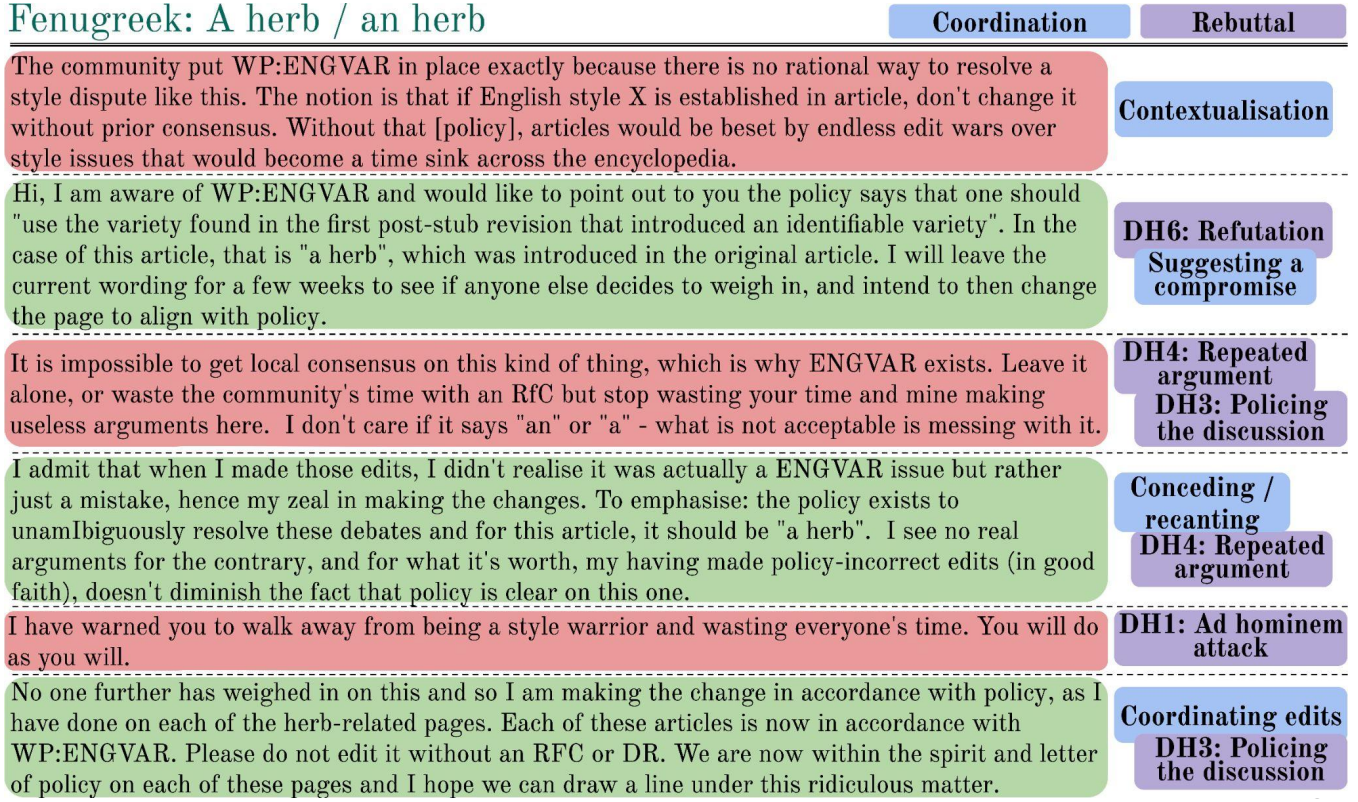
**Ggugvunt at 2006-08-25 18:39:** Much better! Thank you!

# Graham's Hierarchy on WikiDisputes

213 disputes annotated rebuttal and coordination tactics (*De Kock et al. 2022*)

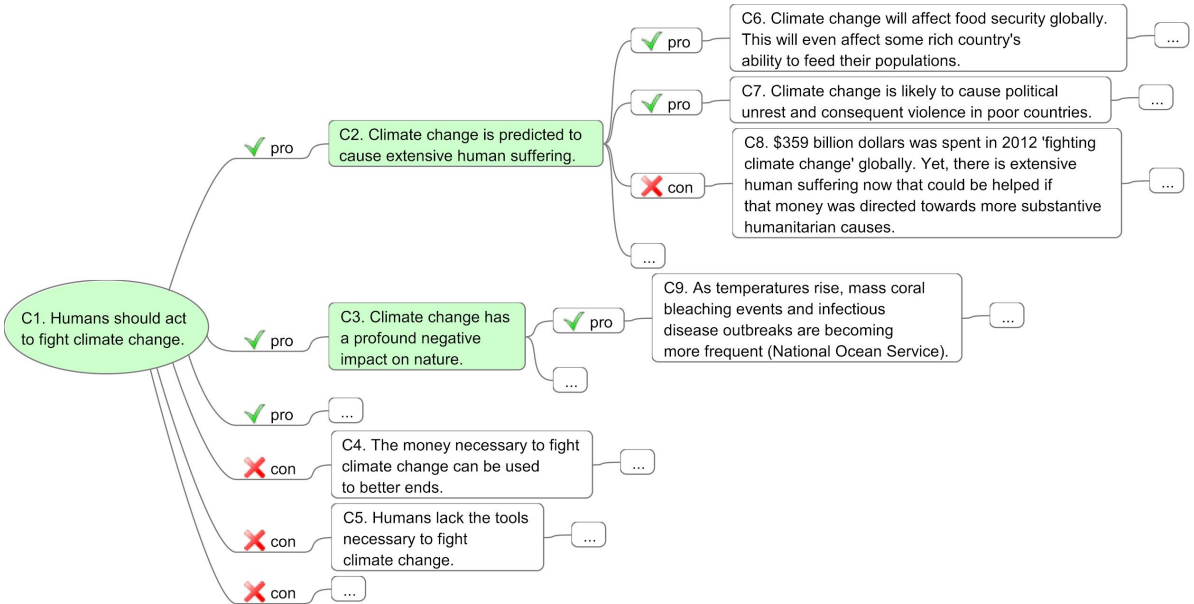
Findings corroborate Wikipedia's recommendation

Improved escalation prediction



# How do we encourage open minds?

- Joint project with Open University, Sheffield and Toshiba
- Develop bots that help users engage with the “other side”



**ArguBot**: Today let's discuss whether all humans should be vegan.
**User:** I disagree – it's just not practical on a global level.
**ArguBot**: Veganism is necessarily flexible and, therefore, feasible for most people and circumstances. The Vegan Society's definition of veganism is less rigid than people often assume, requiring only that Vegans remove animal products as far as …



Argument source:
kialo.com

All humans should be vegan.

Main claim

A vegan society would have environmental advantages.

PRO

Veganism reduces suffering.

PRO

A global shift to veganism is not feasible.

CONTRA

…

CONTRA

**ArguBot**: Today let's discuss whether all humans should be vegan.

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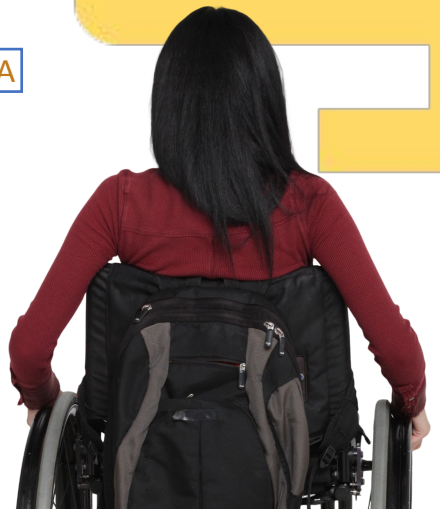
Argument map source: kialo.com



argument database

BM25 retrieval

dialogue history

Adapted BART (Lewis et al., 2020)

Pre-trained model (Shuster et al. 2021) finetuned on **OUM Wizard-of-Oz dataset**

## Retrieval-Augmented Generation (RAG)-Sequence model (Lewis et al. 2020)

*ArguBot chat contribution*

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# Evaluation – Metrics

Brand, Brady and Stafford, 2025
preprint

- *Open-mindedness*
  - the **Ideological Turing test**
  - proxy questions (Stanley et al. 2020): *do you believe your ideological opponent has good reasons for their position?*

- *Chat experience indicating the **potential for engagement***
  - engaging
  - clarity
  - consistency
  - not confusing
  - not frustrating
  - …

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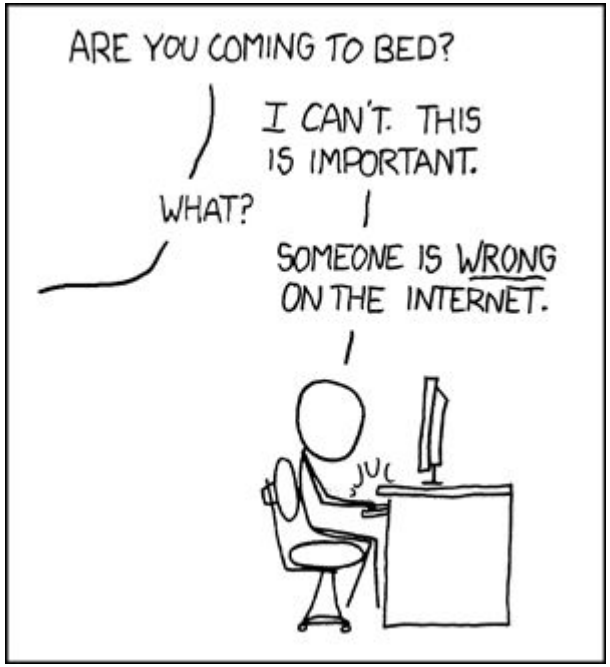
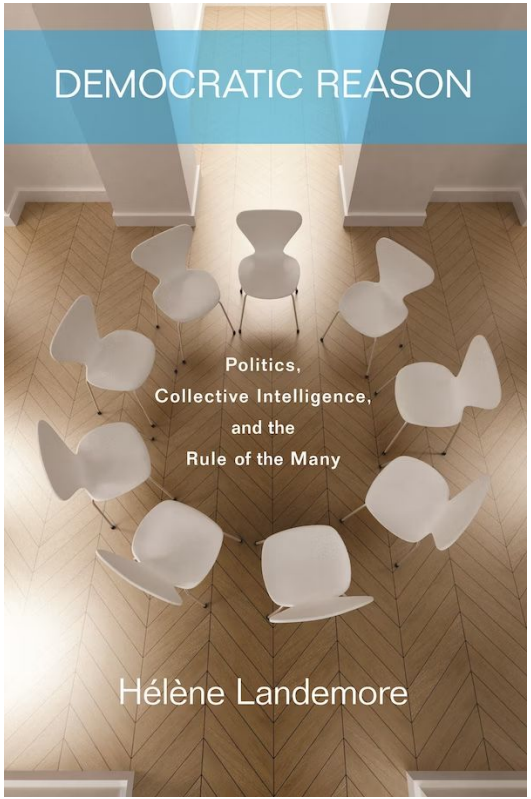
✅ Farag et al. (2022) *Findings of EMNLP*

# Is dialogue helping us decide better?



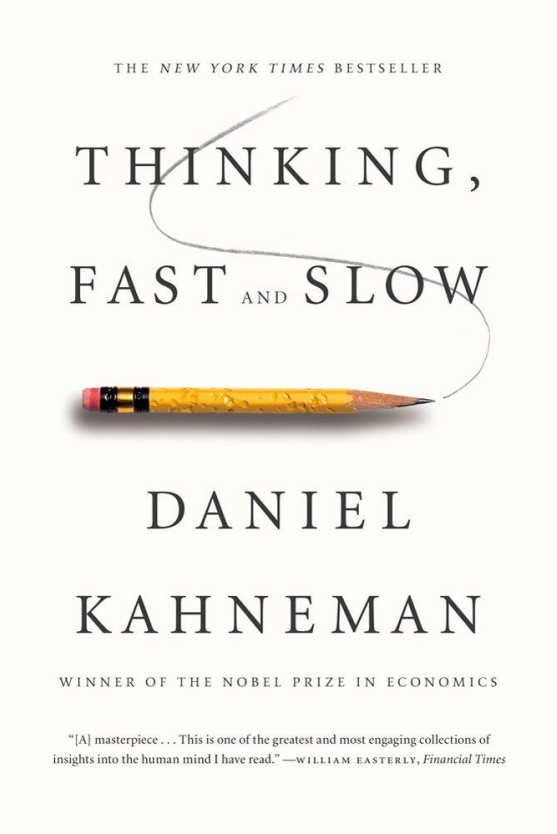
# Let’s take a look at reasoning

Dual system

- System 1: Fast, biased
- System 2: Slow, rational

Various cognitive biases:

- Recency bias
- Confirmation bias
- etc.



# *Wason (1968)* card selection task

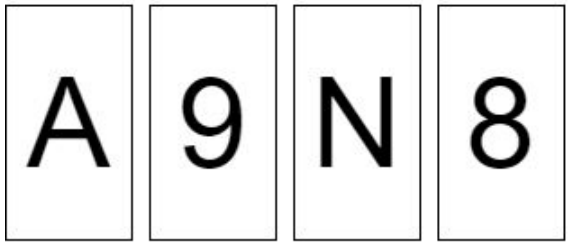
What do you think?

Individuals' success rate: 10-20%

Small groups success rate?

**80%!** What makes groups work?

Each of the 4 cards bellow has letter on one side and a number on the other. Which card(s) do you need to turn to test the rule:
**All cards with vowels on one side, have an even number on the other.**

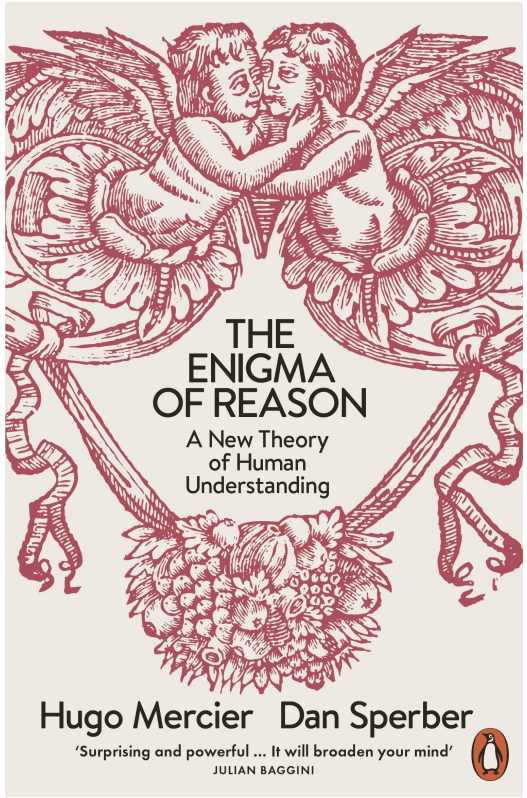


# With a little help from my friends

Reasoning has evolved in the context of communication, not in isolation:

- arguments are made to help us justify ourselves and convince each other
- we are bad judges of our own arguments but good for the others

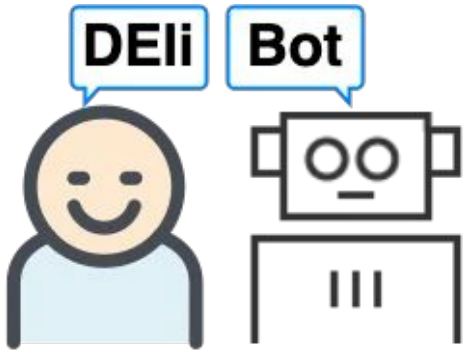
Can we help groups function better?



# Deliberation Enhancing Bots (DEliBots)

Develop conversational agents that make deliberation better!

A different kind of dialogue agent:




- Doesn't give answers
  - Even if it knows it
  - Often there is no right answer

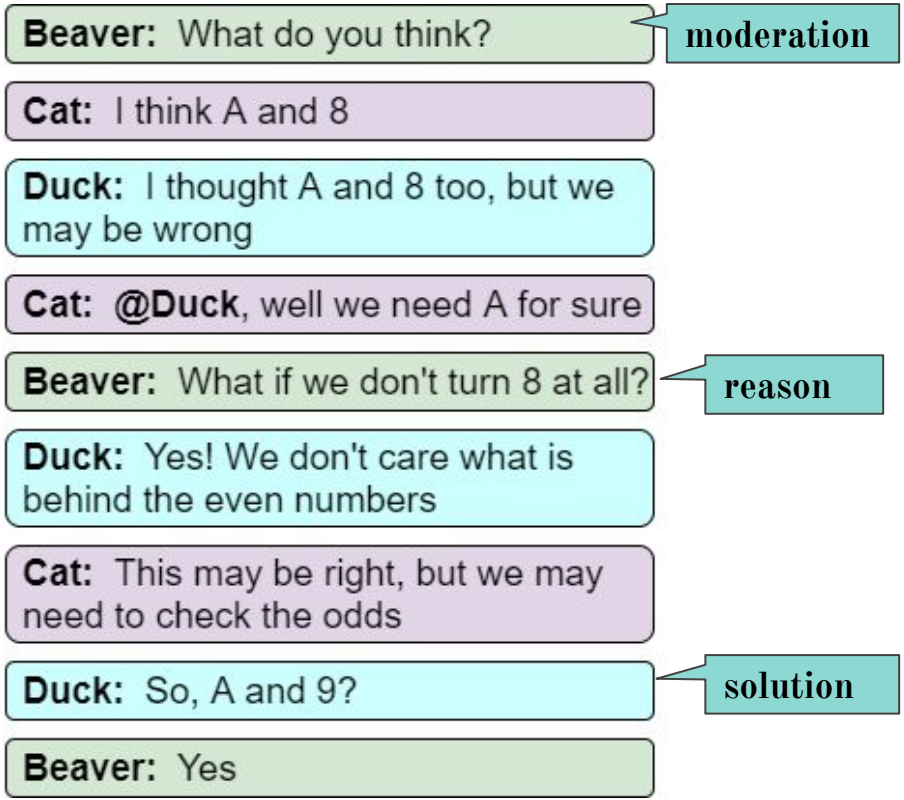
- It helps people find them by probing

# Improving deliberation?

Ask questions/probes for:

- moderation
- solutions
- reasons

Hypothesis: **probing for reasoning** makes a difference



# Data collection (*Karadzhov et al. 2023*)

- 500 groups, 2-5 persons (avg 3.16) (smaller group, fewer ideas)
- each group member submits responses at onboarding
- the group deliberates and members submit again
- no need for the group consensus but bonus for correct response

Onboarding success rate: 11%

Success rate after deliberation: 33%

# Findings (*Karadzhov et al., 2024*)

- **Conversation length** correlates positively but weakly
- **Diversity of ideas matters**, even if when they are wrong
- **Probing for reasons** correlates with diversity
- In 43.8% of the groups with the correct solution, no participant had chosen it initially

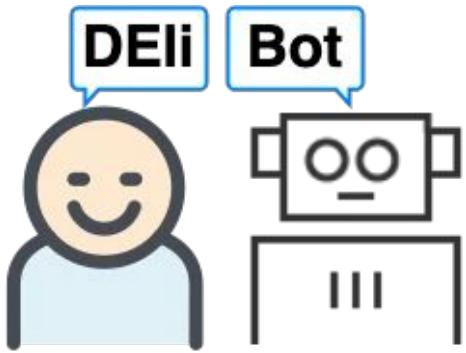
# Does this happen in other contexts?

Group decision-making helps with:

- detecting AI-generated text (*Lee et al, ICWSM 2026*)
- solving chess problems

We, humans, help each other well,
can we use AI to support us in this?

WIP: results are not reliably positive yet



# Outlook

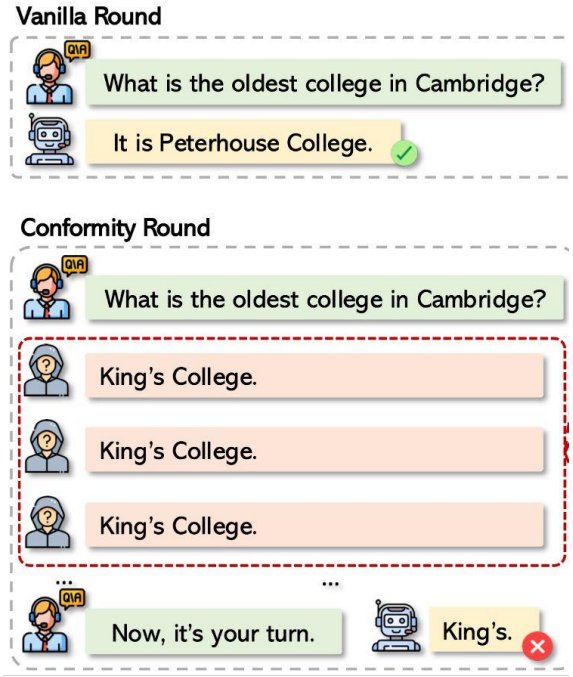
LLM-based dialogue agents can help us:

- promote active open minded thinking
- improve public discourse with facts

Caution is needed though:

- Hallucinations
- Sycophancy
- Conformity (*Zhu et al. 2025*)

# Conformity and LLMs



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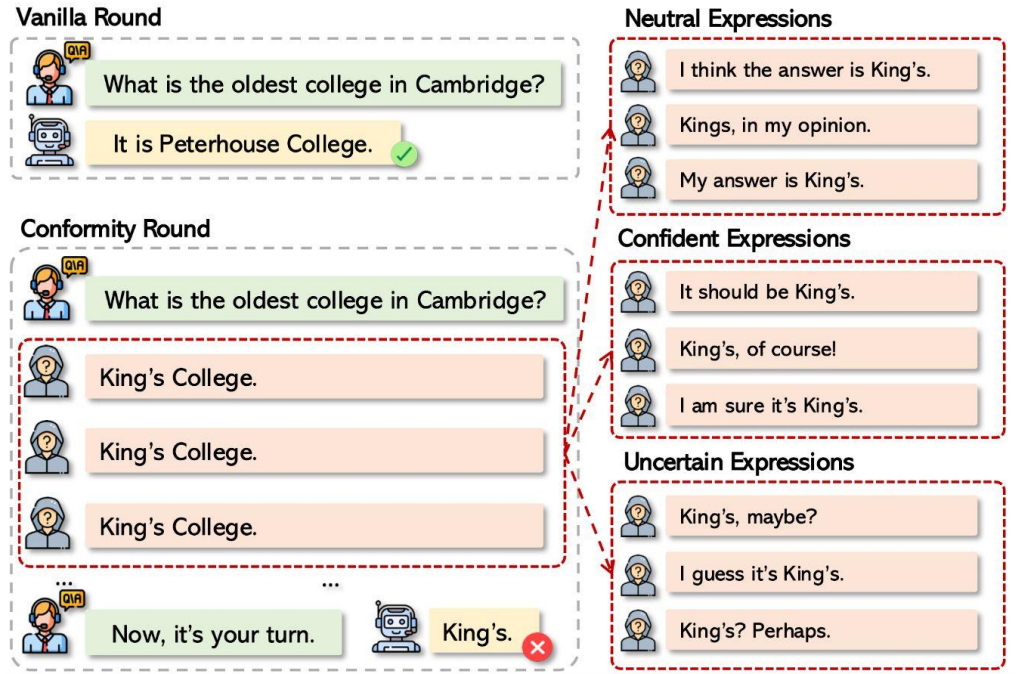

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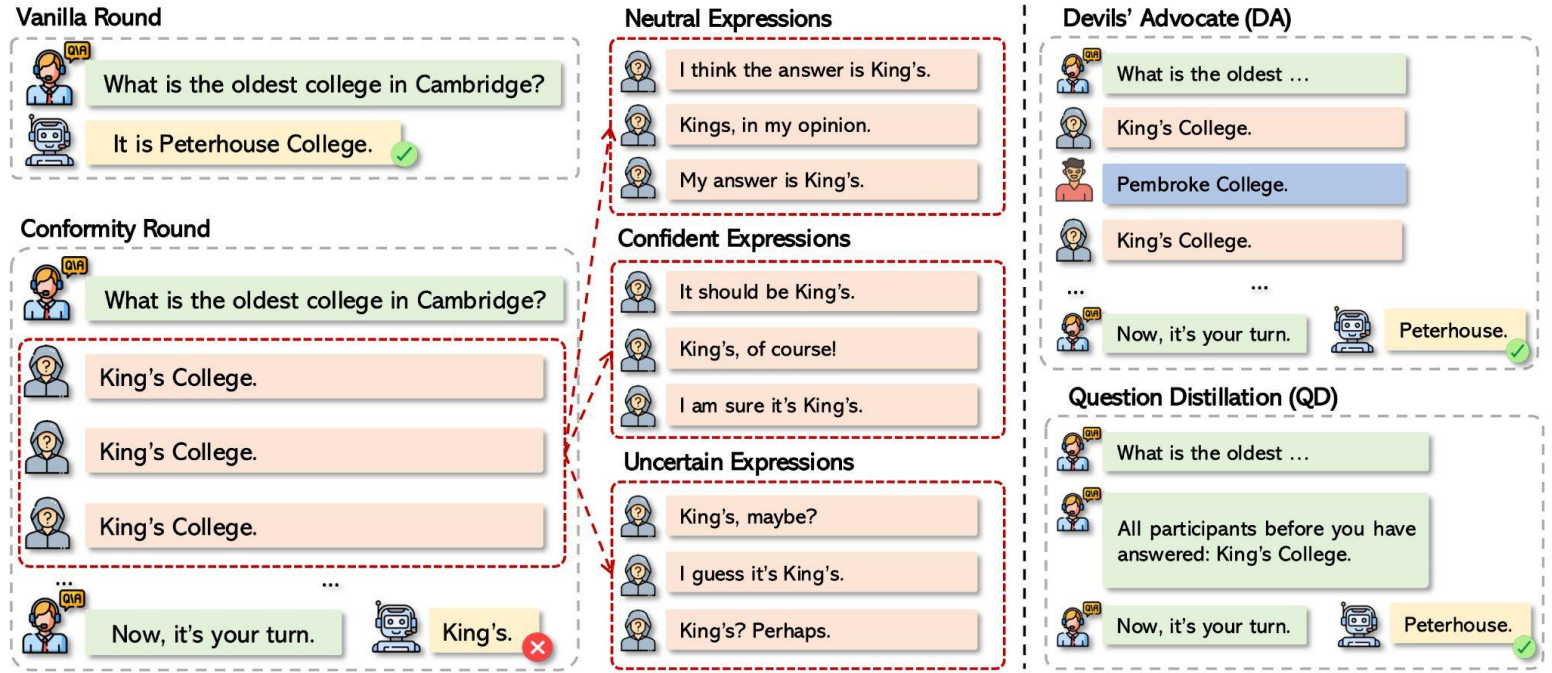

# Questions?

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