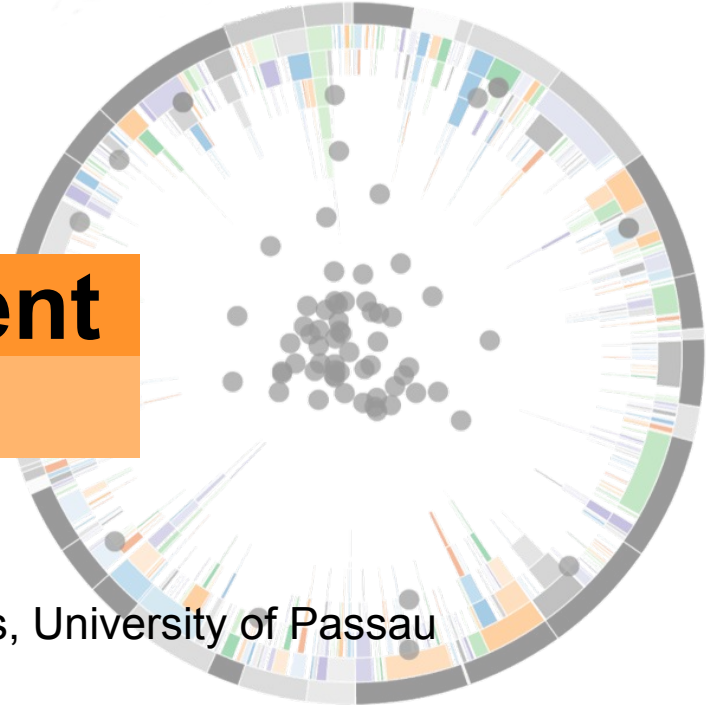# Types of disagreement on Reddit

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ECA 2022, Rome

De Lab
Deliberation Laboratory

- A collaboration between research groups at the University of Passau, University of Dundee, Maastricht University, Georg-August-Universität Göttingen and Warsaw University of Technology.
- **Aim of the project:** build an AI-powered virtual moderator which can identify emerging conflicts in the discussions online and intervene in the conversations to prevent further escalation.

Types of disagreement on Reddit

Motivation & Research question

Disagreement is more than just a binary phenomenon.

RQ1: To what extent are previous typologies of disagreement applicable to social media data?

RQ2: How reliable can we annotate data using experts and non-experts?

Related work

Existing typologies of disagreement:

- Muntigl and Turnbull's ranking typology of disagreement (1998)
- Disagreement patterns by Scott (2002)
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- Taxonomy of disagreement by Rees-Miller (2000):
    - Disagreement softened
    - Disagreement neither softened nor strengthened
    - Disagreement aggravated

Types of disagreement on Reddit

Examples in the US2016Reddit corpus (Visser et al., 2019)

1a. Clone95: *Seriously, O'Malley's great out there. I like this guy and I was a Sanders supporter beforehand.*

1b. Mojo1200: *O'Malley has no charisma, some of his answers might be decent but he puts me to sleep.*

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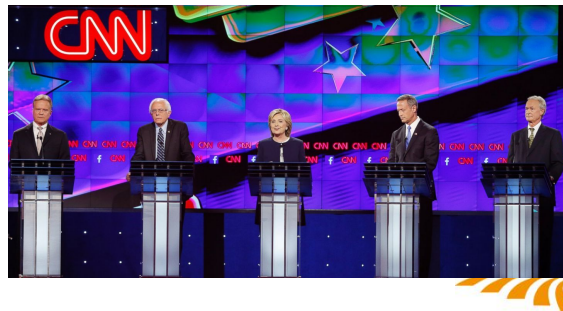2a. liamliam1234liam: *In the same way Romney beat Obama in one of their debates: disingenuously.*

2b. Mutt1223*: No, Romney didn't win, Obama lost because he seemed disinterested and relied to heavily on trying to actually explain the issue.*

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2b. Mutt1223: ***No, Romney didn't win****, Obama lost because he seemed disinterested and relied to heavily on trying to actually explain the issue.* - Disagreement neither softened nor strengthened

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Examples in the US2016Reddit corpus (Visser et al., 2019)

3a. Helicase21: *The biggest issue for Sanders is that expectations for him were really high. Remember how people thought that having fewer debates was going to be a massive advantage for Hillary? I'm afraid it ain't so.*

3b. Tuatho: *If you're basing your political opinion based on which speaker is smoother and not based on a plethora of political issues, you shouldn't be fucking voting [...]*

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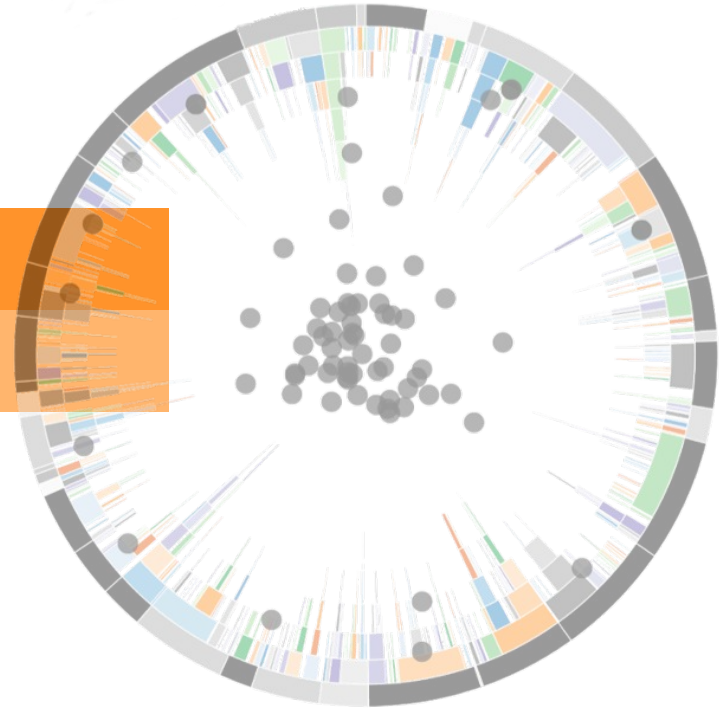
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Types of disagreement on Reddit

Disagreement annotation study

Types of disagreement on Reddit

Dataset

- US2016D1reddit corpus (Visser et al., 2019; http://corpora.aifdb.org/US2016tv): Reddit conversations the Democratic debate for the 2016 US President election
- Disagreements: 2 turns at a time
- Turn 1 - initial statement; Turn 2 - disagreement statement
- 89 cases of disagreement

| #	Turn 1	Turn 2	IAFdb #	Softened/aggravated/neither
1	[deleted]: They're treating the Democrats so much worse	jtyndalld: Ehhh not so much. They're just not having a he-said	21967	Softened Negative
2	bourne2011: He avoided that question like the plague.	Teh_Slayur: It's empty labeling. That's why he responded with	21968	Nor softened or strengthened
3	Bigtuna546: He isn't answering any question. He sounds like a broken record every time he speaks. I f	SlowMotionSprint: How is there a lack of substance in his car	22131	Aggravated
6	uhyoudonebrah: He's just reiterating what a lot of Americ	[deleted] No I think hes saying the same thing over and over	21972	Softened Negative
7	[deleted] No I think hes saying the same thing over and o	uhyoudonebrah: He has general outlines, such as what he ha	21972	Aggravated

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Annotation procedure

- Two rounds of annotation: three annotators in each round
- Three categories of disagreement: softened, neither softened no strengthened (neutral), aggravated
- Guidelines based on Rees-Miller (2000)
- Provided annotators with context in the second round of annotation

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Results of annotation I

Disagreement types in Reddit data:

Softened
36.8%

Aggravated
32.3%

Neither softened nor strengthened
30.9%

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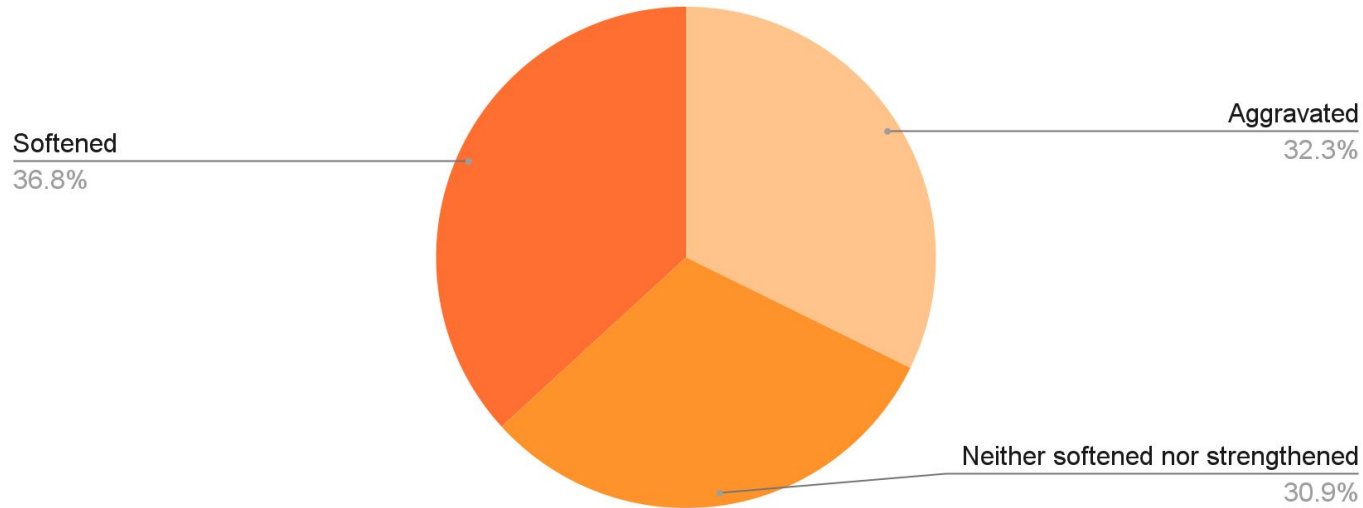
Results of annotation II

Certain features are characteristic of certain types of disagreement:

Graphic signals indicating disagreement:

- verbalization of emotional reaction
- visual intensification

Types of disagreement on Reddit

Results of annotation II

Lexical features of disagreement:

- negations
- discourse particles/markers
- second/first-person pronouns
- questions
- judgmental vocabulary
- emotionally loaded vocabulary
- name calling

- naming with familiarity
- verbs/expressions of uncertainty
- downtoners
- absolutes
- imperative

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Results of annotation II
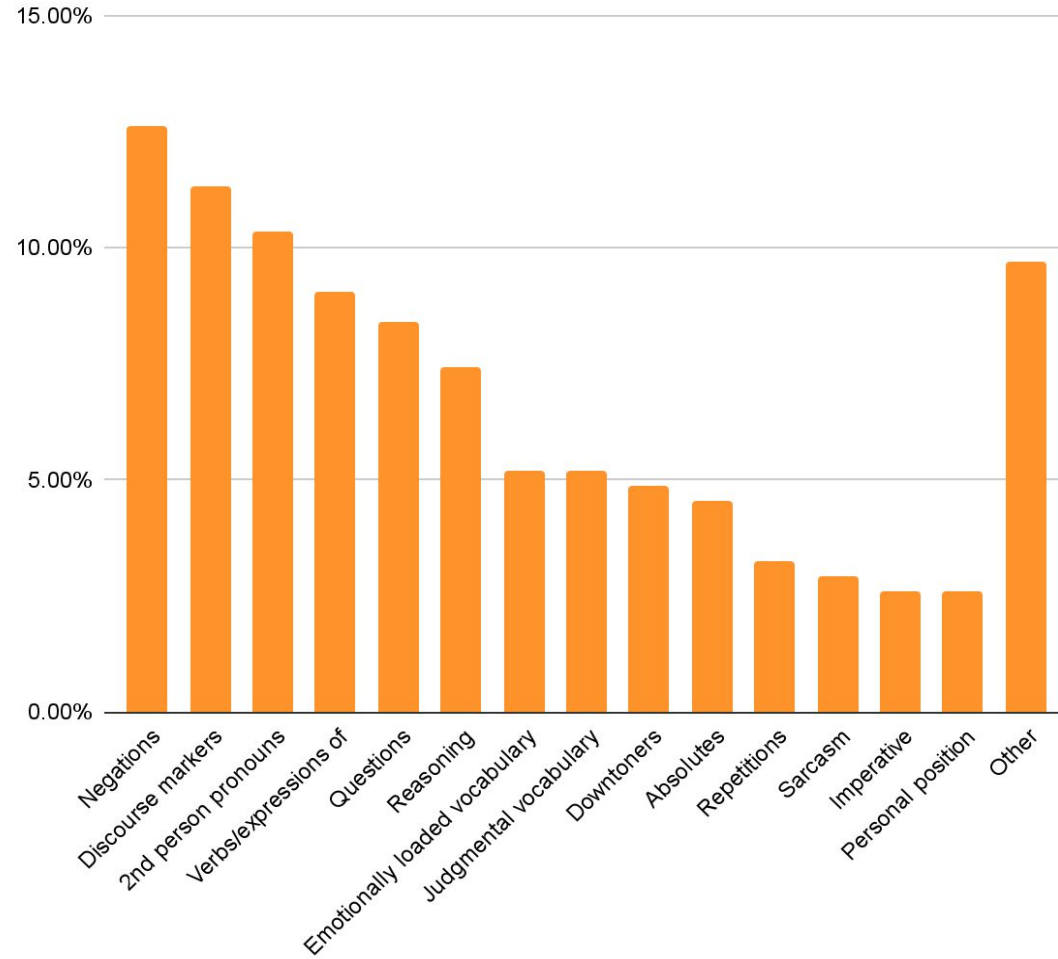
Rhetorical devices:

repetitions and sarcasm

Other:

- reasoning

- elaboration

- acknowledgment of the perspective of the other

- apology

- expression of personal position

- expression of personal experience

- direct quote of the previous message; source as evidence

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Results
of annotation II

Results of annotation III

Inter-annotator agreement:

➤ In both rounds of annotation **Fleiss kappa ≈ 0.5 (0.51 and 0.48)** indicate moderate agreement
➤ Nor softened or strengthened has the best IAA (kappa=0.57 and kappa=0.52 respectively)

➤ Providing annotators with context for the disagreements didn't improve the IAA

Types of disagreement on Reddit

Error analysis

Softened vs aggravated disagreement:

- Questions are tricky:

  5a. ThatOldRemusRoad: *He hasn't actually answered a single question.*

  5b. mitch47: ***you sure?*** *I saw him in Portland, and* ***I think*** *he's doing a good job on responding to the situation Milwaukee's recent gun control hearing.*

Error analysis

- Use of expressions of familiarity:

6a. Askew123: *Better when he isn't cross-examined...*
6b. mitch47: ***Bruh****!!!! have a little faith **fam***! What exactly you mean?*

- Contrasting sentiment:

7a. Elmattador: *you must have missed the GOP debates.*
7b. Bigtwinkie: ***Respectfully disagree****, the GOP debates were a lot of fluff. I guess that's what happens when your leading candidate its calling people **fat and ugly** and **just being silly***

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Crowdsourced annotation

Can common social media users judge the type of disagreement based on the perceived intention of the speaker?

- The same data separated into sets of about 30 disagreement pairs
- 10 annotators for each set

IAA: Fleiss Kappa of **0.19** on average – slight agreement

Likert scale (mild → intense disagreement) instead of typology:
average Krippendorff's alpha of **0.29** – fair agreement.

Types of disagreement on Reddit

Summary

Typology annotation: moderate success with expert annotators – seems to be highly subjective

Linguistic features aid in the identification of the types of disagreements

BUT:

Need both linguistic features and speaker intention, e.g.:

Using polite words ≠ being polite

Further investigations required

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Thank you
for your attention!

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