

# Dialog-Based Online Argumentation

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NRW-FORTSCHRITTSKOLLEG  
**ONLINE-PARTIZIPATION**



Fachhochschule  
für öffentliche Verwaltung  
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*Heinrich Heine*  
HEINRICH HEINE  
UNIVERSITÄT DÜSSELDORF

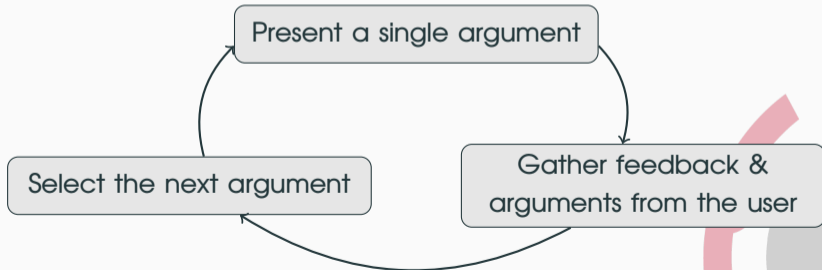
We are interested in participation processes and:

- Online participation processes do not always work
- Interaction of the participants is a key element
- Participants are not practiced in (online) reasoning
- Large number of discussion participants



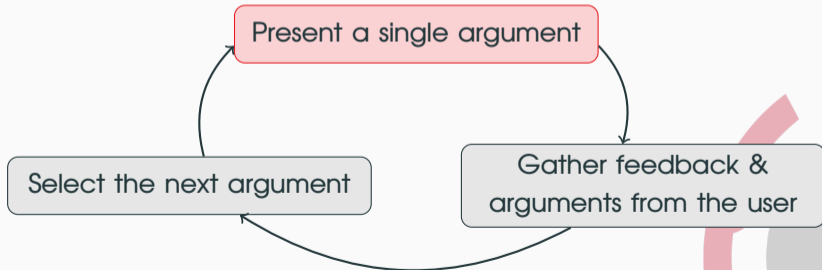
## Idea: Dialog-Based Online Argumentation

- Simulate a real-world discussion
- The system is a representative of all those users that have already participated
- Input of other users are the base of a new discussion
- It conducts a dialog with the current user:



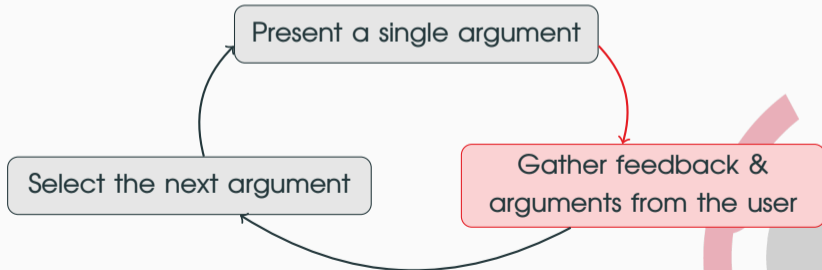
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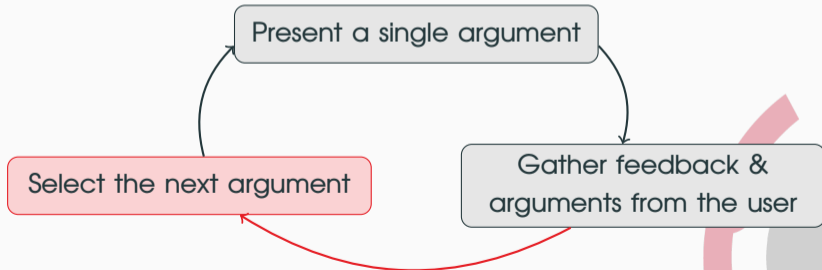
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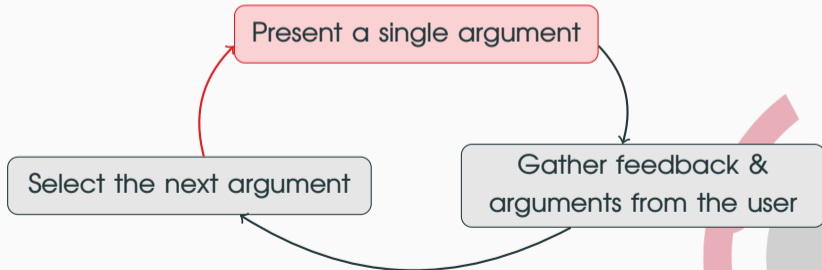
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## Demo

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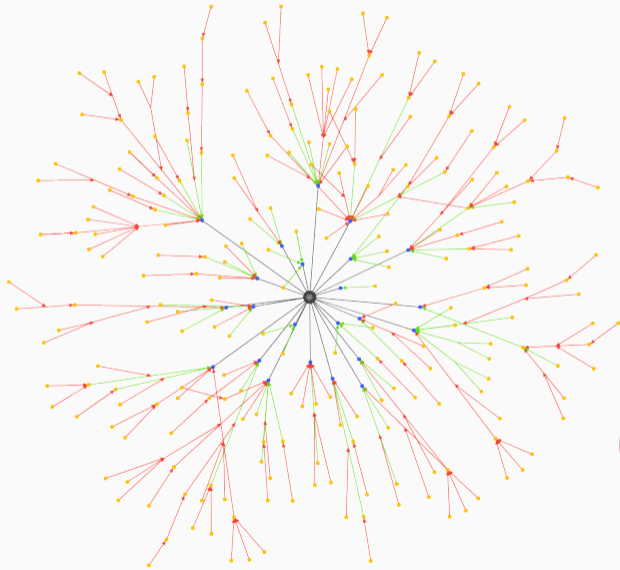


- 09. May - 28. May 2017
- Invitation of all students of computer science
- Topic: „How can the studies of computer-science be improved and the problems caused by the large number of students be solved?“
- Argument map with 2 positions, each with 2 attacks and supports
- 318 users / 35 authors / 235 arguments



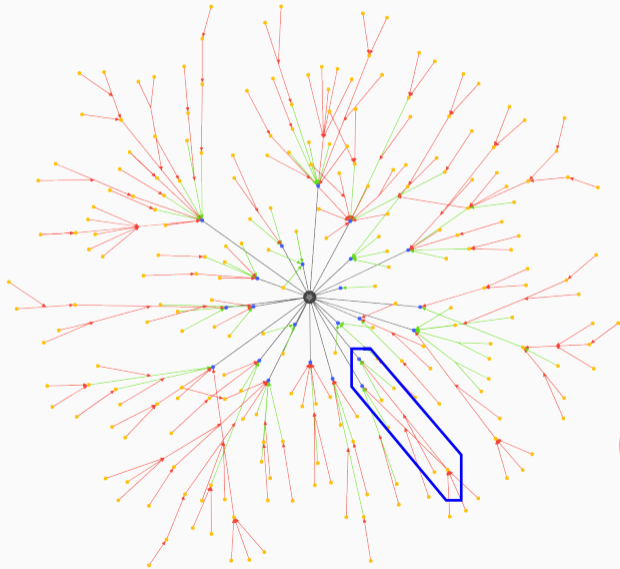
# Field Experiment: Result

- Position
- Statement
- Support
- Attack

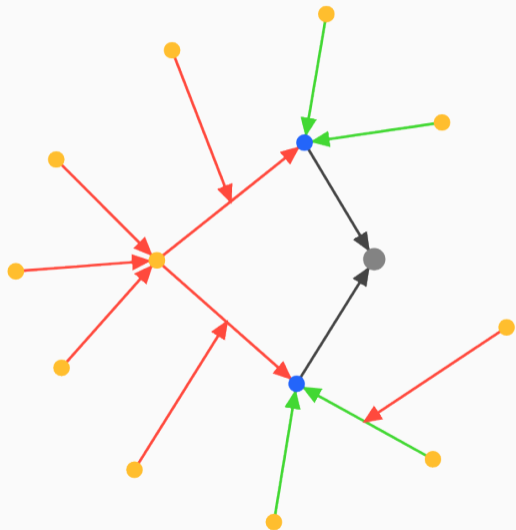


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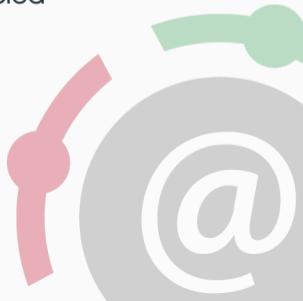
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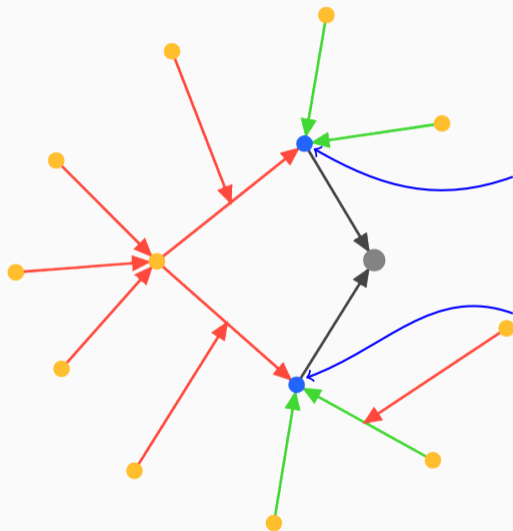
## Partial Discussion



- Very structured
- Reduce the number of statement to read from 13 down to 3 (compared with a forum)
- Statements are recycled



## Field Experiment: Partial Discussion

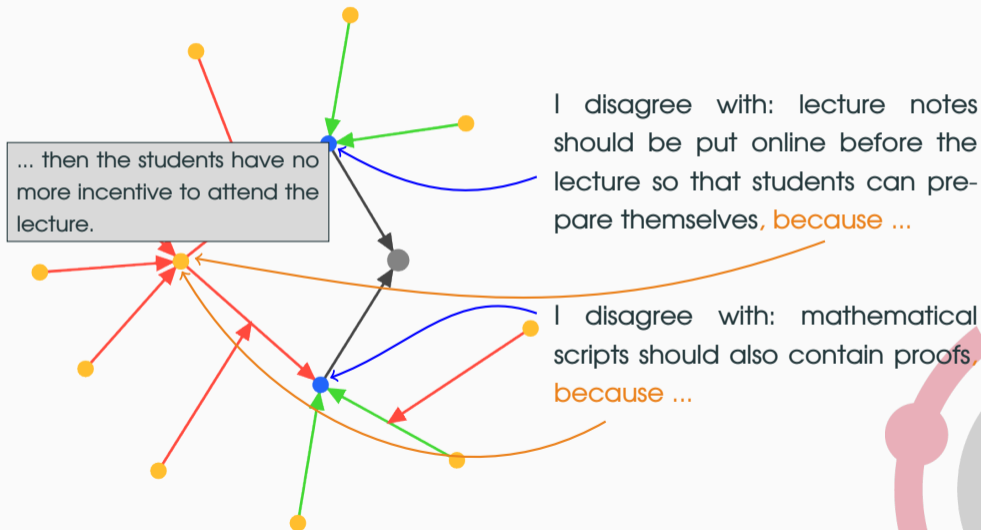


I disagree with: lecture notes should be put online before the lecture so that students can prepare themselves.

I disagree with: mathematical scripts should also contain proofs.



# Field Experiment: Partial Discussion



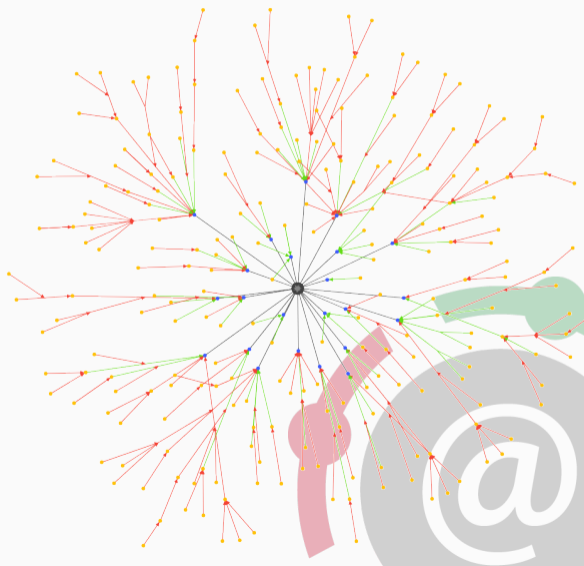
## Field Experiment: Conclusion

- 235 arguments
- 73% attacks, 27% supports
- 437 reactions
  - 35,7% undermines
  - 24,5% undercuts
  - 10,0% rebuts
  - 7,9% supports
  - 3,4% another argument
  - 18,5% step back



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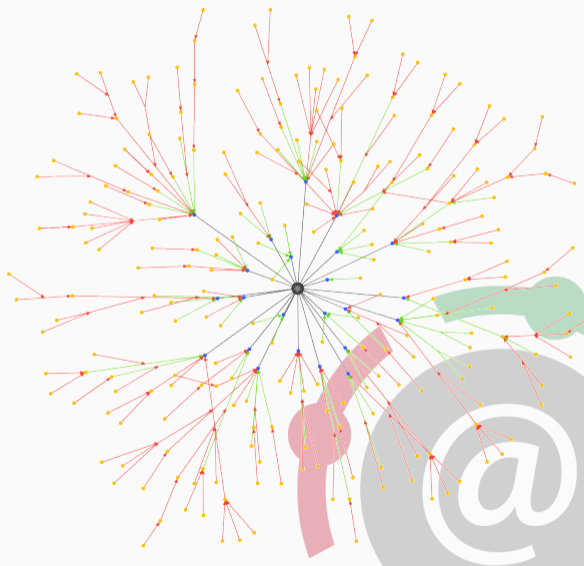
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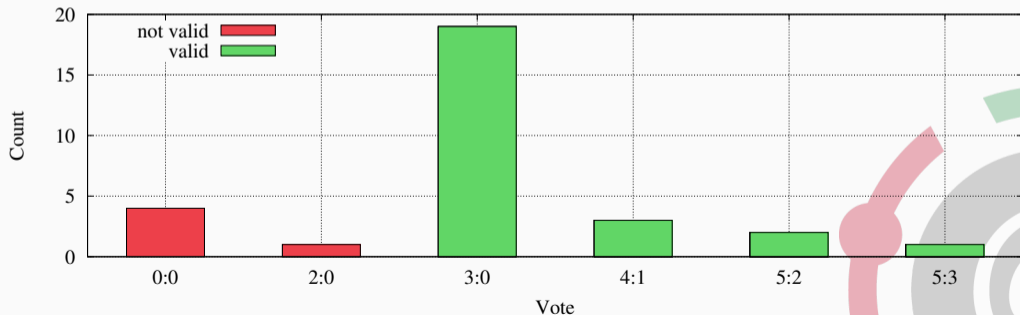
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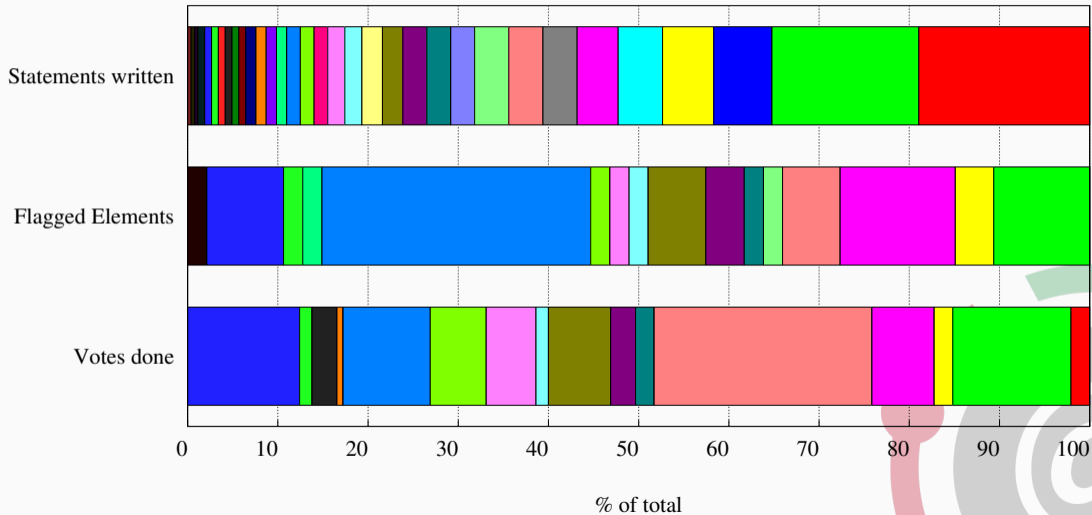


# Field Experiment: Decentralized Moderation

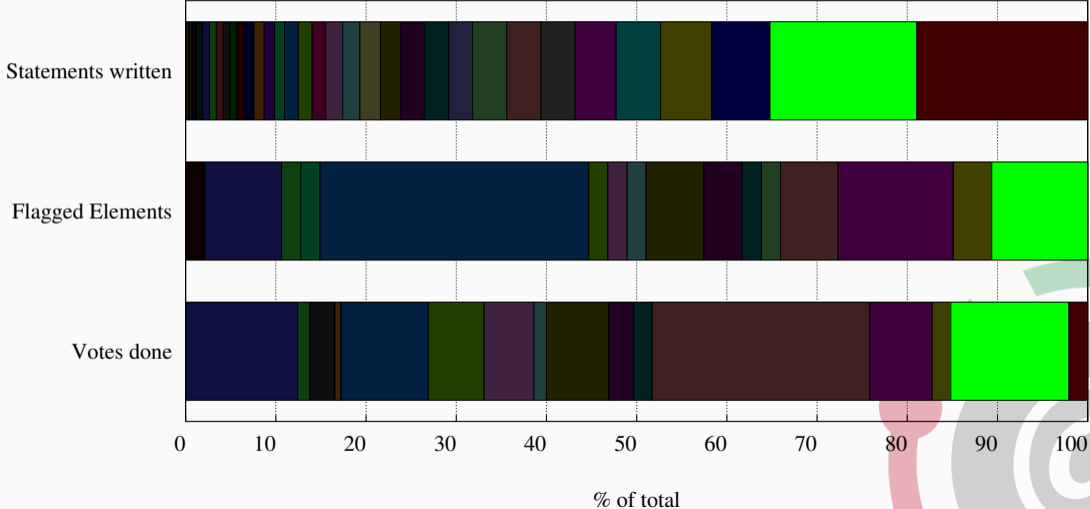
- Queues: Delete, Edit, Duplicate, Optimization, (Split & Merge)
- Votes need three leading actions, capped by 5
- 47 flagged Statements: 25 Edits, 5 Duplicates, 17 Optimizations



# Field Experiment: Decentralized Moderation - Poweruser?

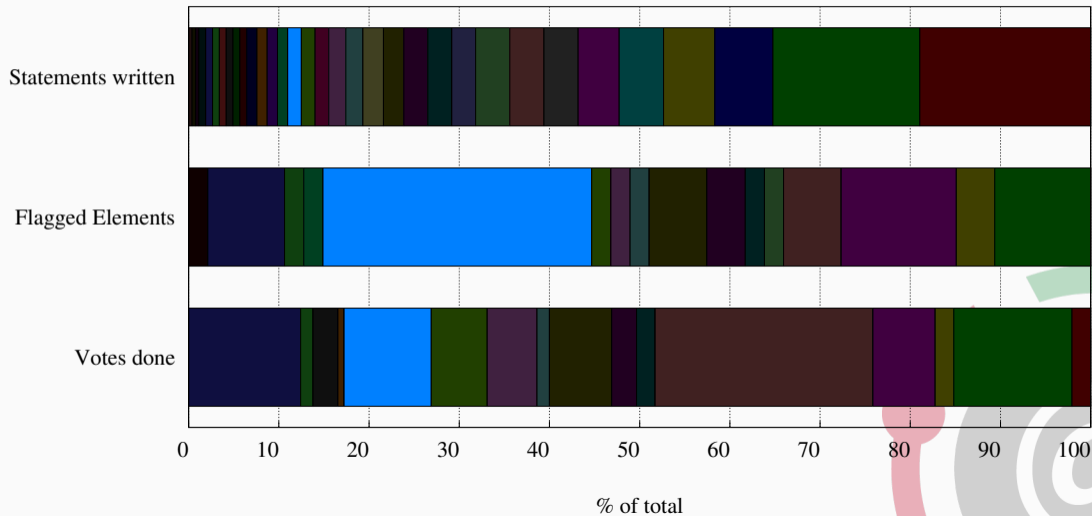


# Field Experiment: Decentralized Moderation - Interested in everything



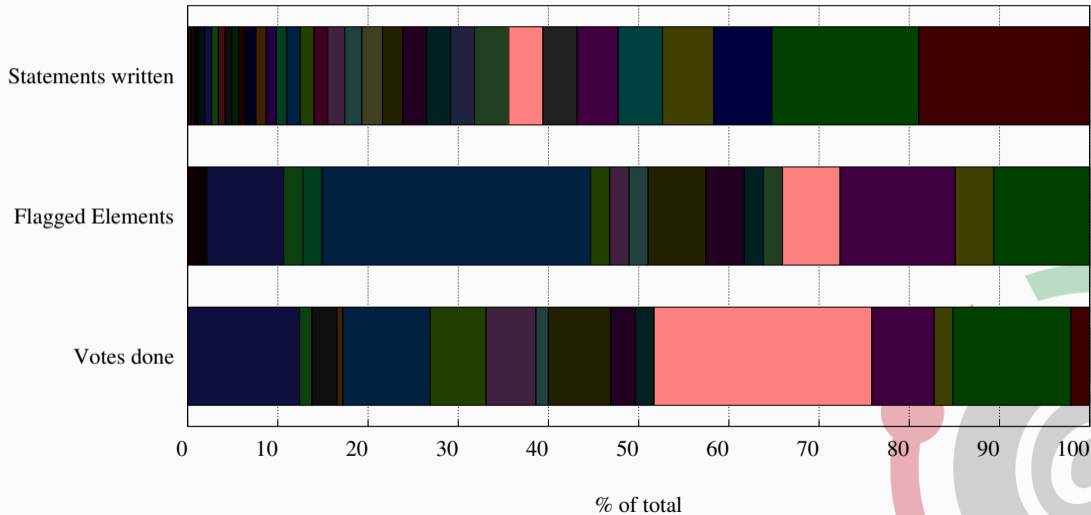


# Field Experiment: Decentralized Moderation - Flagging

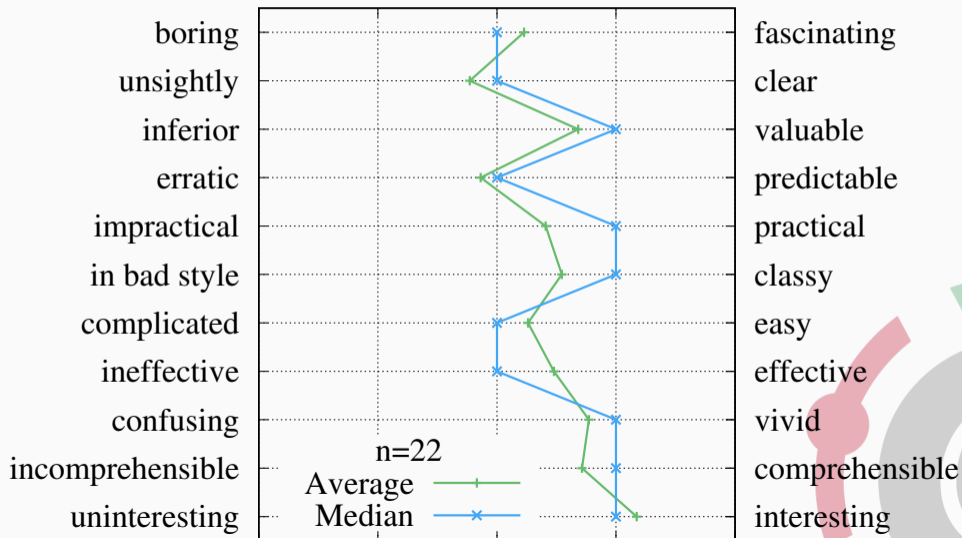




# Field Experiment: Decentralized Moderation - Voting



# Questionnaire: Bipolar wordpairs



- Practical development of a dialog-based argumentation system
- Distributed moderation for dialog-based systems
- Findings from a field study



- Jebediah: Arguing with a Social Bot
- discuss: Embedding dialog-based discussions into websites
- EDEN: Extensible Discussion Entity Network
- Real world experiments



# Dialog-Based Argumentation System

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<https://dbas.cs.hhu.de>



<https://github.com/hhucn/dbas>