SCHOOL OF INFORMATION CENTER FOR
SOCIAL MEDIA RESPONSIBILITY
UNIVERSITY OF MICHIGAN

Cross-Partisan Discussions on YouTube:
Conservatives Talk to Liberals but Liberals Don't Talk to Conservatives

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ICWSM '21

Four existing narratives of political discussions on social media

Narrative	Papers
People deliberately avoid information challenging their viewpoints	(Hart et al. 2009; Sunstein 2018)
Conservatives are less open to challenging political ideas	(Carney et al. 2008; Sindermann et al. 2020)
The existence of ideological echo chambers	(Garrett 2009; Pariser 2011; Lima et al. 2018)
Conservatives troll on liberal spaces	(Phillips 2015)

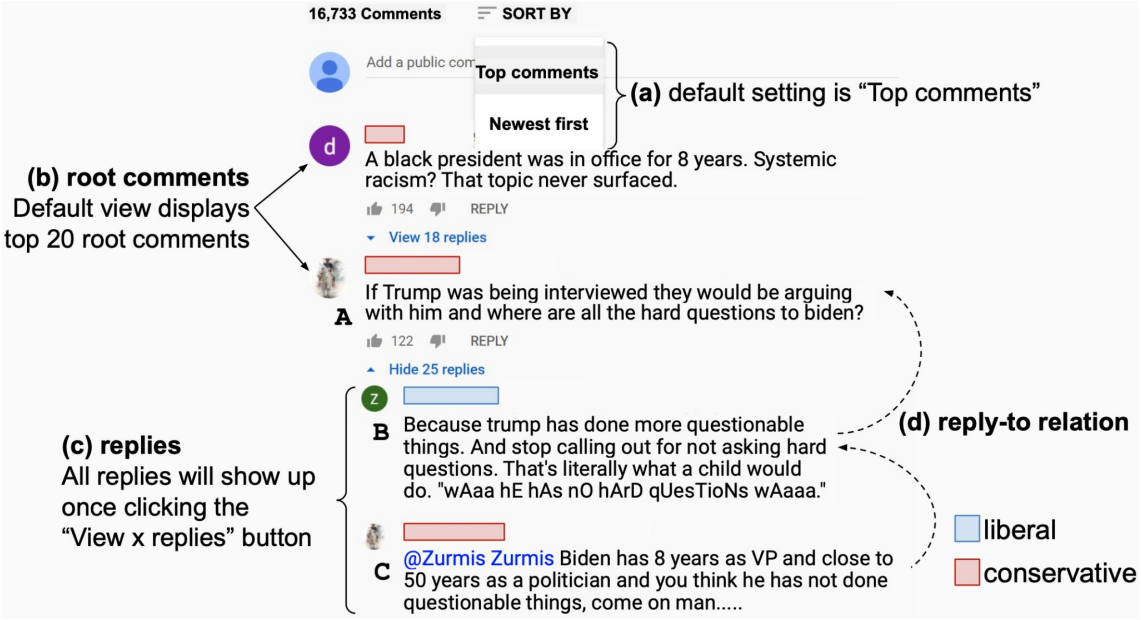
***Contribution*: the first large-scale measurement study of cross-partisan discussions between liberals and conservatives on YouTube.**

Outline

1. Dataset and HAN model
2. How many comments cross political partisan line? And where do they appear?
3. Does YouTube's ranking algorithm hide cross-partisan comments?
4. What is the quality of cross-partisan communication?
5. Summary

A new YouTube political discussion dataset

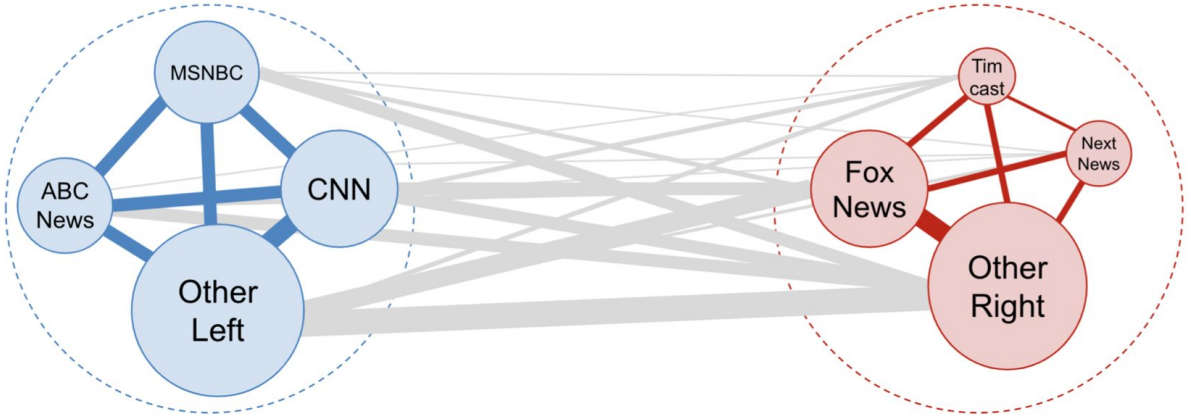
- 274,241 political videos from 973 channels of US partisan media and 134M comments from 9.3M users over eight months in 2020[1].
- "Newest first" for collecting all comments; "Top comments" for collecting the top 20 root comments.
- Conversation threads were reconstructed, e.g., who replied to whom.



[1] Data scrapers are released, check our Github repo on the last page!

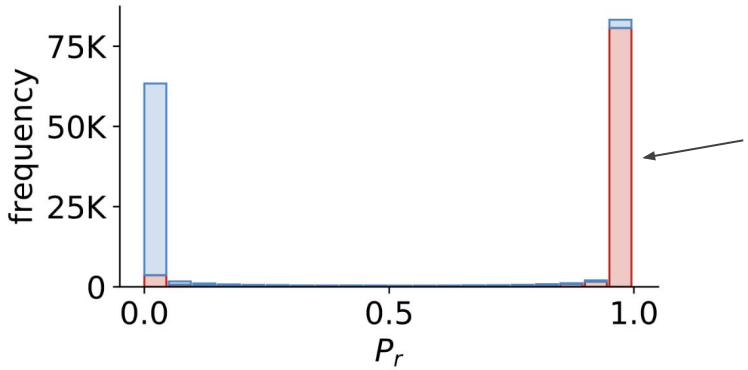
Cross-partisan discussions are common on YouTube

- Nodes: Channels or collections of channels
- Edges: the number of users commenting on channels at both ends.
  - 69.3% of users with at least 10 comments posted at least once on both left-leaning and right-leaning YouTube channels.



Predicting user political leaning with Hierarchical Attention Network

- Procedure:
  - Assign political leaning labels of seed users with label propagation;
  - Train HAN models (Yang et al. 2016) based on comments posted by seed users;
  - Classify the remaining users with trained HAN models.
- Results:
  - HAN models[1] with high accuracy on hold-out set (93%).
  - *Pr* >= 0.95, classify as conservative; *Pr* <= 0.05, classify as liberal.



Users with high *Pr*, the majority of them are indeed conservatives.

[1] Pre-trained HAN models are released, check our Github repo on the last page!

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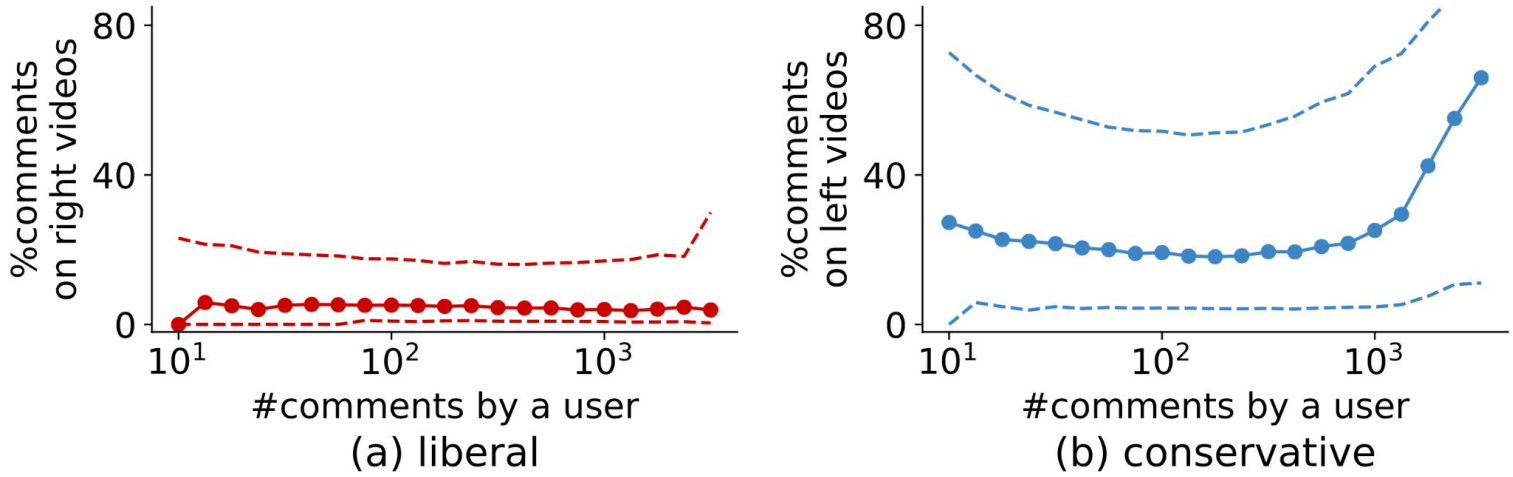
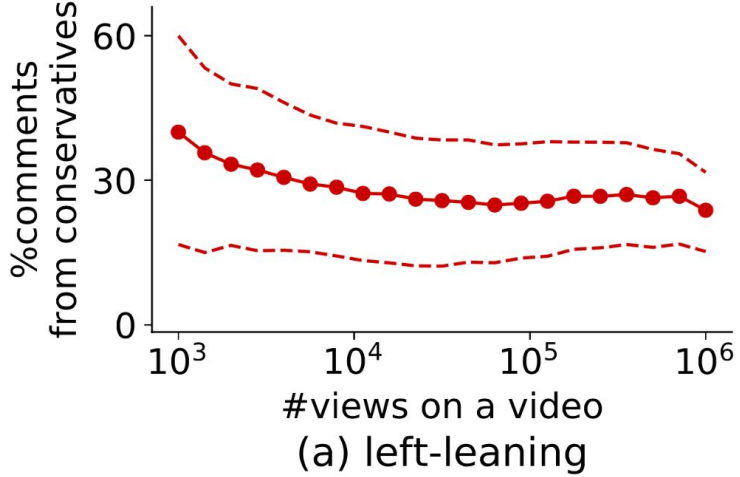
Cross-partisan commenting is asymmetric

Conservatives are much more likely to comment on left-leaning videos than liberals on right-leaning videos.

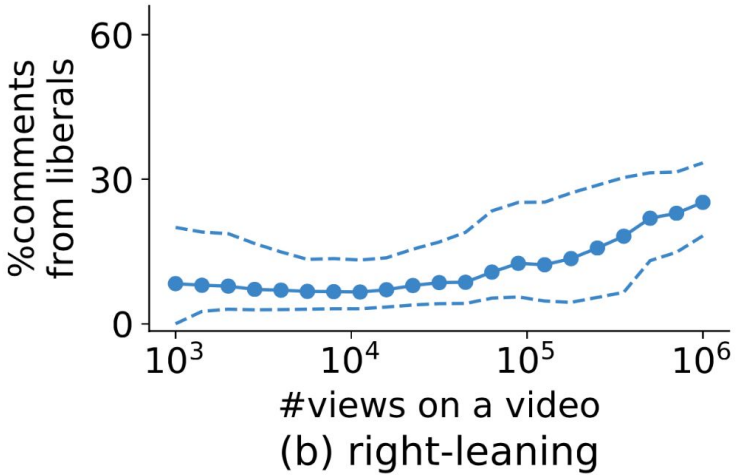


Conservative spaces have a stronger echo chamber effect

As a result, right-leaning channels are more like echo chambers. Even there, however, about one in ten comments is from a liberal user.



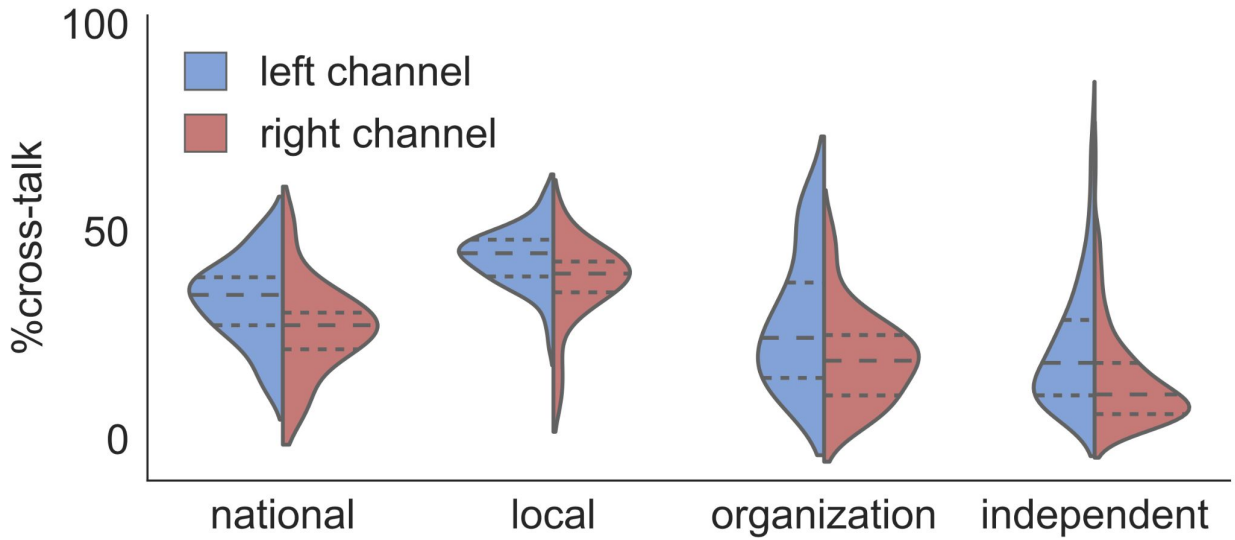
(a) left-leaning



(b) right-leaning

Right-leaning independent media are most echoic

Half of right-leaning independent media had fewer than 10.7% comments from liberals. For example, the most commented-on channel in that category, “Timcast”, had only 3.3% of its comments from liberals.



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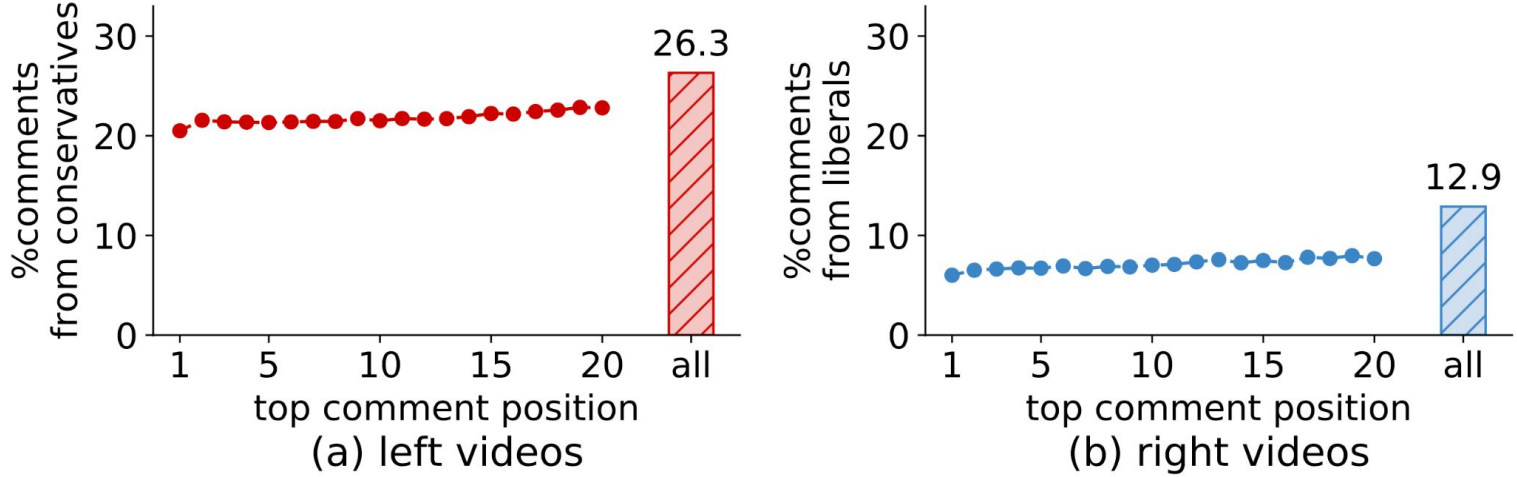
YouTube's comment sorting algorithm reduces visibility of cross-talk

Root comments from conservatives on left-leaning videos and liberals on right-leaning videos are less likely to appear among the top 20 positions.



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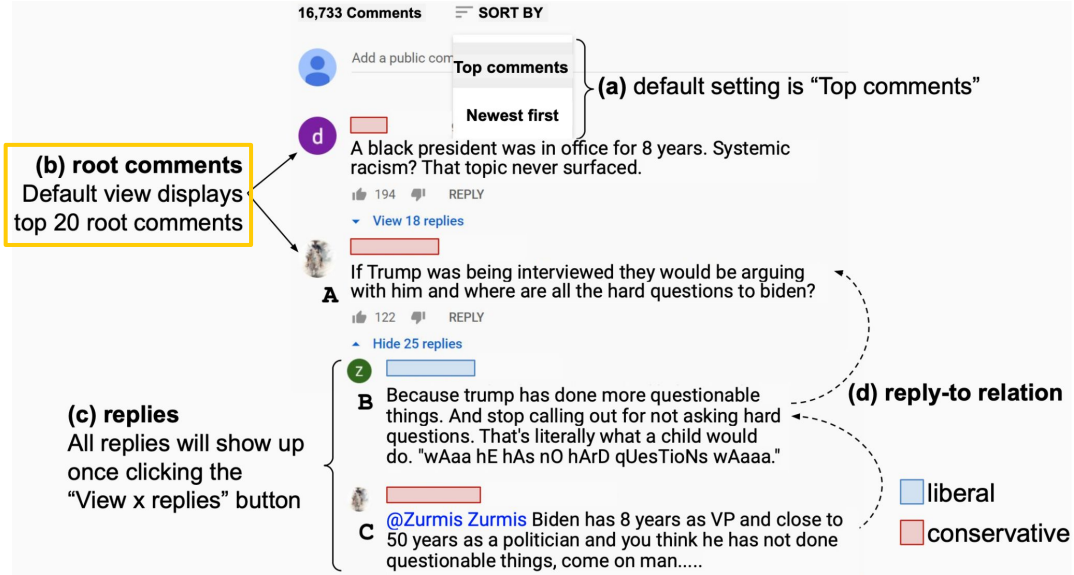
Conservatives are not more toxic than liberals in root comments

- Toxicity classified by the Google's Perspective API (*threshold:* 0.7).
- Liberals and conservatives' root comments had about the same toxicity when posting on left-leaning videos. However, conservatives posted fewer toxic root comments on right-leaning videos.

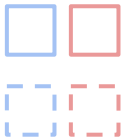


from \ to	left video	right video
liberal	15.73%	**16.31%**
conservative	**15.77%**	14.44%

Cross-partisan replies are more frequently toxic than co-partisan replies

The highest toxicity occurs when defending one's home territory. For example, when liberals respond to conservatives, 18.24% of replies are toxic on left-leaning videos *vs.* 15.31% of replies are toxic on right-leaning videos.

from \ to	lib. on left video	cons. on left video	lib. on right video	cons. on right video
liberal	12.12%	**18.24%**	13.42%	**15.31%**
conservative	**15.24%**	11.11%	**17.15%**	10.18%



On home territory

On the opposite party

Summary

Narrative	Found on YouTube?
People deliberately avoid information challenging their viewpoints	No
Conservatives are less open to challenging political ideas	No
The existence of ideological echo chambers	Some, e.g., on conservative independent channels
Conservatives troll on liberal spaces	No

Additionally,

- YouTube's comment sorting algorithm modestly reduces visibility of cross-talk.
- Cross-partisan replies are more frequently toxic than co-partisan replies.
- The highest toxicity occurs when the repliers defend on their home territory.

Data scraper, code, data, and pre-trained HAN models: https://github.com/avalanchesiqi/youtube-crosstalk