Analyzing the Traits and Anomalies of Political Discussions on Reddit

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New Filipino law requires all students to plant 10 trees if they want to graduate

Hurray for trees, but it seems kind of unfair that big mining companies get to rip the earth apart, and students are mandated to clean up the mess.

Corporate responsibility will never exist in this kind of capitalistic world.

It will never change. Society keeps becoming more materialistic. All we do is talk and complain and do nothing.
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This Work

- Framework for the study of political discussions on Reddit
  - Leveraging explicit cues from the platform

- Analysis of distinct discussion dynamics
  - Arising from patterns of user interactions

- Connecting different facets
  - Posts, votes, sentiments and topics
Modeling Political Discussions on Reddit

- Communities dedicated to politics
  - News articles as submissions
  - Broad and deep discussions

- Hierarchy of comment threads
  - Tree-structure
  - Common link: news articles
  - Root-to-leaf paths: sequences of direct interactions

New Filipino law

47.9k
independent.co.uk/... 1.3k Comments

Hurray for trees, but it seems ...
331 points crillep

It will never change. ...
Corporate responsibility ...
 Destring
176 points
-10 points

Meladath

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- **X-posts**
  - Flagged as “controversial” (upvotes/downvotes ≈ 1)
  - Score below visibility threshold (upvotes – downvotes ≤ –4)
Patterns of Conversation

- Defined by the dichotomy of X-posts and normal posts
  - Harmony: a post path containing only normal posts
  - Discrepancy: a single X-post anywhere in the path
  - Disruption: sub-sequences of normal posts and X-posts
  - Dispute: alternating between X-posts and normal posts
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- Enriched by content features
  - Post sentiment and topics
Sentiments

- **crillep** 331 points
  - Hurray for trees, but it seems kind of unfair that big mining companies get to rip the earth apart, and students are mandated to clean up the mess.

- **Meladath** 176 points
  - Corporate responsibility will never exist in this kind of capitalistic world.

- **Destring** -10 points
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**VADER: Valence Aware Dictionary and sEntiment Reasoner\(^1\)**
- Lexicon of word sentiment
- Sentiment polarity and intensity of posts

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Topic cohesion

- Posts as sentence embeddings with Doc2VecC²
- Cosine similarity between news and posts

Patterns of Conversation

- Combining pattern structure and content
- Expectations as hypotheses, verified with statistical tests
- Performed on submissions to subreddits r/Politics and r/WorldNews in 2016

*Annotated dataset at bit.ly/reddittraits
Patterns of Conversation: Harmony

- Harmonies have the highest sentiment score

- Harmonies have the highest topic similarity with the news article
Patterns of Conversation: Harmony

• Harmonies have the highest sentiment score → True ($p < 0.001$)

• Harmonies have the highest topic similarity with the news article → True for World News ($p < 0.001$), not significant for Politics ($p > 0.05$)

A no-name social democrat senator captured 45% of the vote against the most famous female politician on earth. An achievement for sure.

What does Angela Merkel have to do with it?

It's definitely Merkel or Clinton

What about Evita Peron? There's musicals about her!
Patterns of Conversation: Discrepancy

- The X-post in a Discrepancy expresses a different sentiment from the rest of the path.
- The X-post in a Discrepancy has lower similarity with the news article than normal posts in the path.
Patterns of Conversation: Discrepancy

- The X-post in a Discrepancy expresses a different sentiment from the rest of the path $\rightarrow$ True ($p < 0.001$)
- The X-post in a Discrepancy has lower similarity with the news article than normal posts in the path $\rightarrow$ True ($p < 0.001$)

Can't we just invest in birth control, family planning and real sex education? That seems like a better idea.

Real sex education includes facts about abortion.

all you need to know is that its murder and should be illegal

wow... that's a comprehensive overview.
Patterns of Conversation: Disruption

- Disruptions display a sentiment shift between normal posts and X-posts

- Disruptions display a topic shift between normal posts and X-posts
Patterns of Conversation: Disruption

- Disruptions display a sentiment shift between normal posts and X-posts $\rightarrow$ True $(p < 0.001)$
- Disruptions display a topic shift between normal posts and X-posts $\rightarrow$ True $(p < 0.001)$

Because Trump is right, media is completely biased and controlled.

This release of information has been completely ignored by 90% of the media.

SurfinPirate 497 points

spec1alsnowflake 344 points

Because Trump is right, media is completely biased and controlled.

AmericaThaGreat -7 points

Youre right, but we cant pretend it doesnt happen for both sides. Fox News and Breitbart are 100% conservative, everything else is liberal.

Beard_of_Vvalor 0 points

MSNBC, imo, is the worst offender on the left. They report only the convenient facts. FOX isn't just a spin factory. It's much worse.
Patterns of Conversation: Dispute

- X-posts have lower sentiment scores than normal posts in Disputes
- Disputes have the highest similarity between posts
Patterns of Conversation: Dispute

- X-posts have lower sentiment scores than normal posts in Disputes → True for Politics ($p < 0.001$), not significant for WorldNews ($p < 0.05$)
- Disputes have the highest similarity between posts → Not significant ($p < 0.05$)

That's not a protest. There's a term for that. That's domestic terrorism.

BLM used violence to advance political goals?

NDubbaYa 414 points
That's not a protest. There's a term for that. That's domestic terrorism.

AngryWatchmaker -15 points
This is not terrorism, don't be that guy.

fungoid_sorceror 11 points
It absolutely is. The definition of terrorism is using violence to coerce a government into a particular policy decision.

Organic_Outcome -1 point
So the founding fathers were terrorists...
Summary

- Patterns of distinct conversational dynamics...
  - Harmony, Discrepancy, Disruption, Dispute

- ... manifest in structure and content
  - X-posts, sentiments, topics

- Framework for analysis of polarized online discussions
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Thank You!

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