

Analyzing the Traits and Anomalies of Political Discussions on Reddit

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Posted by u/NovelGrass

47.9k



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

independent.co.uk/news/w...

1.3k Comments Share ...



[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



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

The screenshot shows a Reddit post titled "New Filipino law" by user u/NovelGrass, which has 47.9k upvotes and 1.3k comments. Below the post, a comment thread is visible. The top comment is by user "crillep" with 331 points, titled "Hurray for trees, but it seems ...". It has two replies: "Meladath" with 176 points titled "Corporate responsibility ..." and "Destring" with -10 points titled "It will never change. ...".

↑ Posted by u/NovelGrass
47.9k
↓
New Filipino law
[independent.co.uk/...](#)
1.3k Comments ...

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

↑ Meladath 176 points
↓ Corporate responsibility ...

↑ Destring -10 points
↓ It will never change. ...

X-posts and Normal Posts

↑ 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.

↑ Destrिंग -10 points

↓ It will never change. Society keeps becoming more materialistic.
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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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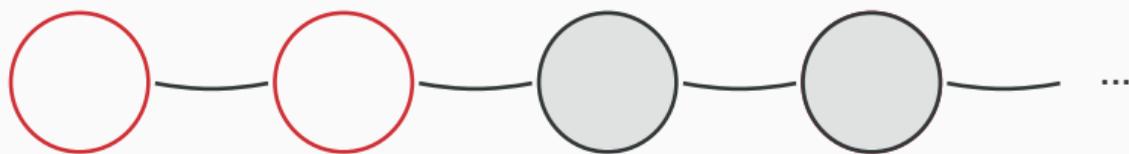
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- Enriched by content features
 - Post sentiment and topics

Sentiments

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↓ 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

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

- VADER: Valence Aware Dictionary and sEntiment Reasoner¹
 - Lexicon of word sentiment
 - Sentiment polarity and intensity of posts

¹Hutto, C.J., Gilbert, E.E. (2014). VADER: A Parsimonious Rule-based Model for Sentiment Analysis of Social Media Text. ICWSM'14.

Topics

↑ [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

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

- Topic cohesion
 - Posts as sentence embeddings with Doc2Vec²
 - Cosine similarity between news and posts

²Chen, M. (2017). Efficient Vector Representation for Documents through Corruption. ICLR'17.

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 ($p > 0.05$)

↑ [StrikingSecond1](#) 224 points

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

↑ [YorkHenderson](#) 212 points

↓ What does Angela Merkel have to do with it?

↑ [UpstairsFisherman](#) 9 points

↓ It's definitely Merkel or Clinton

↑ [Chewbacca_007](#) 3 points

↓ 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 → True ($p < 0.001$)
- The X-post in a Discrepancy has lower similarity with the news article than normal posts in the path → True ($p < 0.001$)

↑ 88x3 848 points

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

↑ FortHouston 607 points

↓ Real sex education includes facts about abortion.

↑ timentom45 -68 points

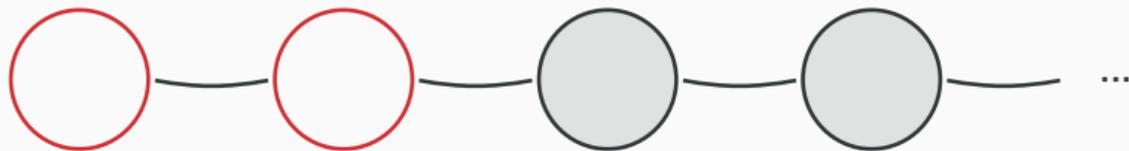
↓ all you need to know is that its murder and should be illegal

↑ kaett 10 points

↓ 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 → True
($p < 0.001$)
- Disruptions display a topic shift between normal posts and X-posts → True
($p < 0.001$)

↑ SurfinPirate 497 points

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

↑ spec1alsnowflake 344 points

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

↑ AmericaThaGreat -7 points

↓ You're right, but we can't pretend it doesn't happen for both sides. Fox News and Breitbart are 100% conservative, everything else is liberal.

↑ Beard_of_Valor 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 ($p < 0.05$)

↑ 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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