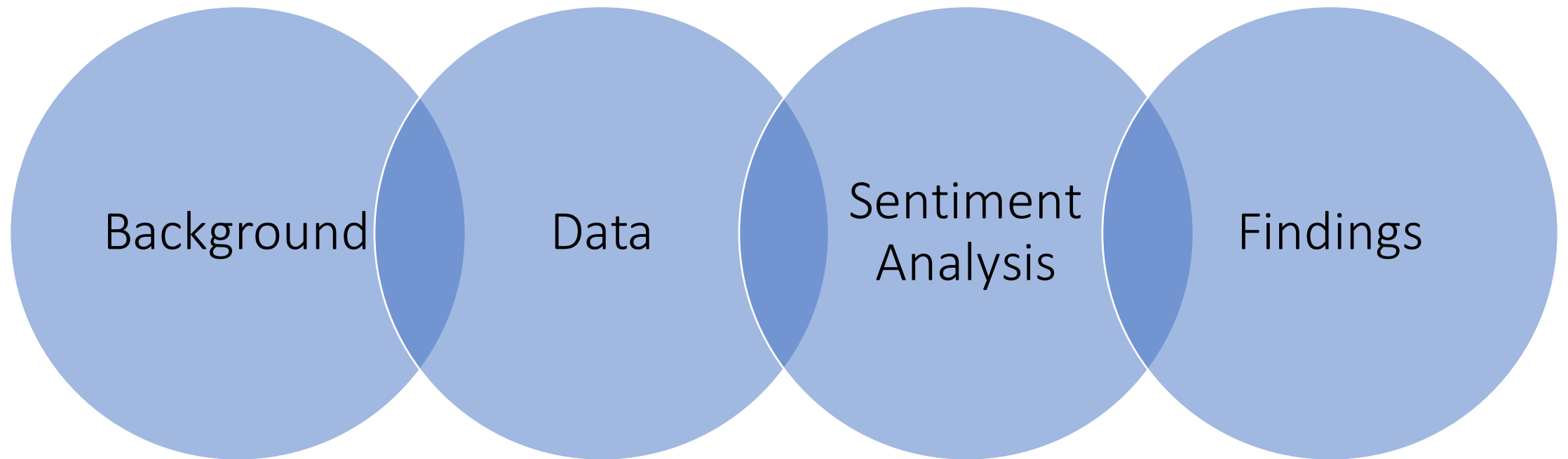# Supply Chain Crisis: Reddit Analysis

Ben Ahnen, Blake McClung, Stephen Schmidt, Jonas Wohlberedt

Agenda

Background
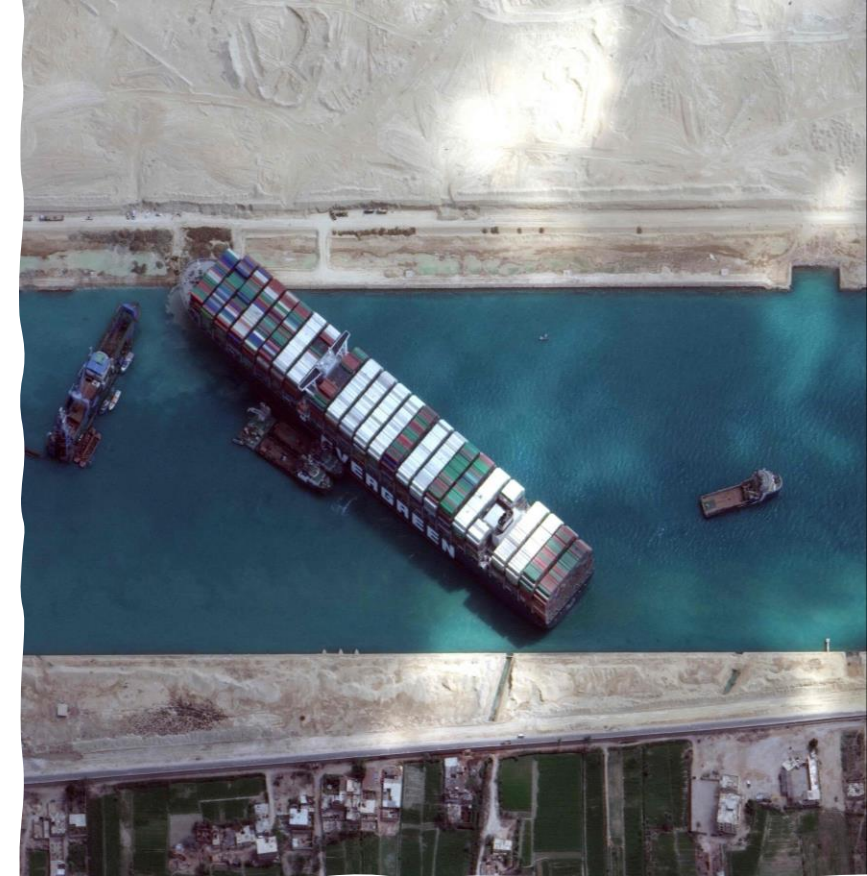
- Evergreen
- Empty Shelves
- Christmas Shopping
- Biden Administration

Data

- 1,000 Reddit posts from the entire month of November
- Reddit comments for each post
- More than 44,000 comments
- Reduced to about 12,000 comments

Reddit API

Used RedditExtractoR package in R

Only allows us to pull data from the last 30 days

Supply Chain Crisis, Shipping Crisis

Twitter API

Initially, we planned to do similar analysis on historical Twitter data

This plan was eventually abandoned due to reoccurring issues with the Twitter API and the inability to access the appropriate quantity of tweets from the desired time frame.

Top Five Comments

- 1) "Heres a wild take on this& hear me out! Borderline crazy to even think it, believe me I know! Maybe, juuuust maybe, its both. I know its not very common in our simple work for ==macro problems== to be caused by more than one input, but I believe it just may be possible. "

- 2) "You mean ==inflation is multi-factorial and not a cause of one single source==? Absolutely insane"

- 3) "Jesus. Years ago my wife's grandfather passed away. I went into work the day of his funeral. She needed me there. Biggest regret of my life, and I haven't done it since. Had to fight some fuckers a few times, but never missed another."

- 4) The TL;DR is that a lot of business shut down due to decreased demand and lockdown restrictions while COVID raged in 2020 and early 2021. Now that vaccines are available the economy has opened back up and demand is surging... but companies don't have the capacity to quickly ramp back up and meet the increased demand. ==The issues have a domino effect all the way down the supply chain==... And if you haven't ordered your Christmas presents in the next couple of weeks, don't expect them to arrive before the holidays..

- 5) I think this is a cold take. ==It doesnt cost 8k more to ship a crate== from china to LA in a two year span because they are printing too much money.

Bottom Five Comments

- 1) And whyyy can consumers afford to pay more?

- 2) Note: My first reply was deleted because I mentioned the coin which shall not be named. This is a great question. My guess on why the USD is still holding up is because other DM countries are also debasing their currencies and the USD is still the global reserve currency (used to settle trade). The gold question is also really interesting. I think gold is struggling as it competes for capital with other inflation hedges, like the coin that shall not be named.

- 3) This is fair, theres more factors at play than we can likely even identify. With that said however, I do think the supply chain narrative is overplayed, and it loses weight as the inflation problem worsens even while the vaccine rollout continues and economies open up.

- 4) It shows great empathy of Belarus people to accepting migrants instead of just saying that and acting in the other way. Full respect to Belarus.

- 5) So, Poland didn't care when Greece and Italy were begging for help, and now they ask for EU action when they previously snubbed everyone? I really wish Poland would just leave the EU.
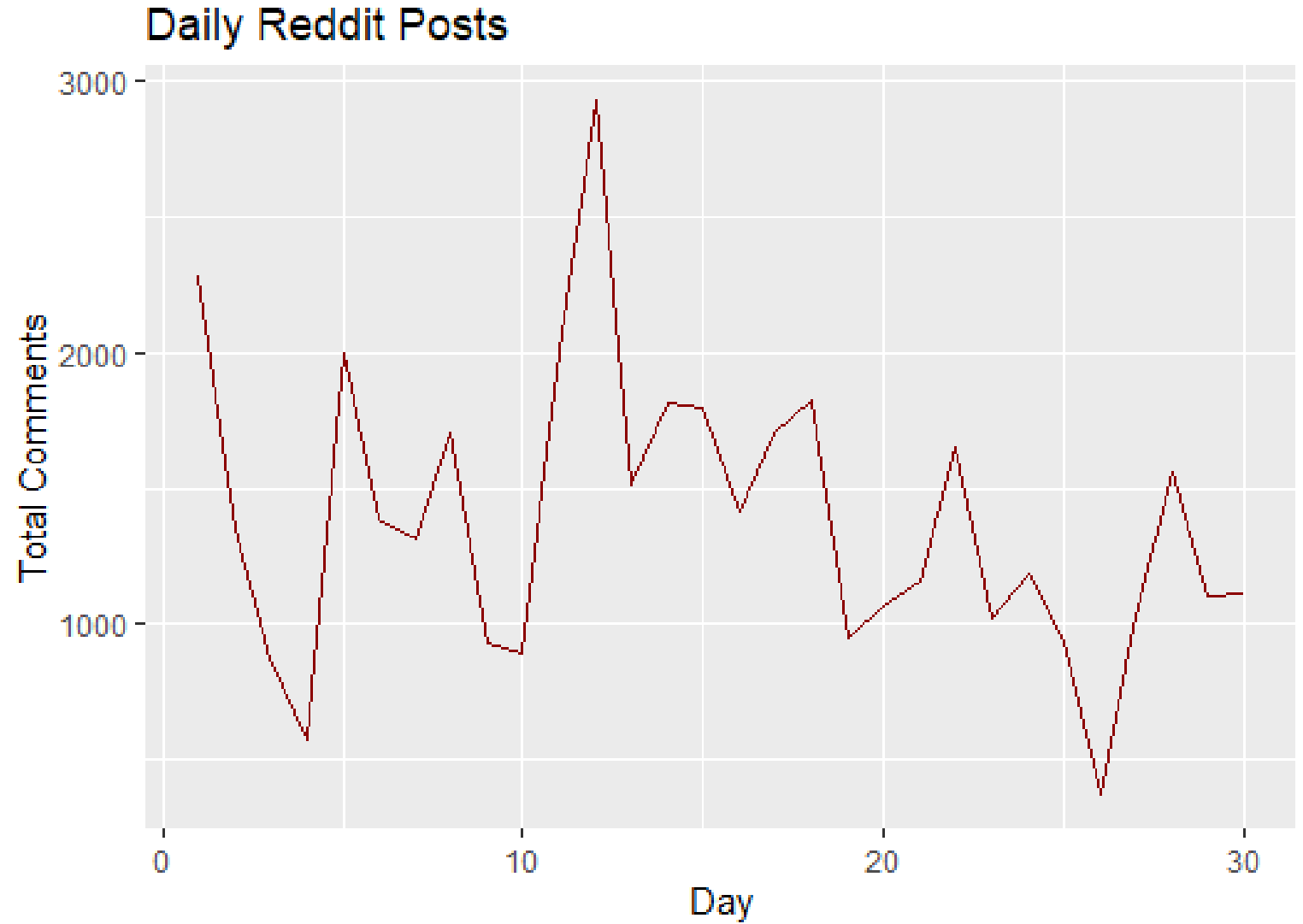
Comment Findings

The top comments pertained more to the issue than the bottom comments

Far more posts get upvoted than downvoted

Polarity of accounts does not equate how many upvotes or downvotes those accounts receive in total
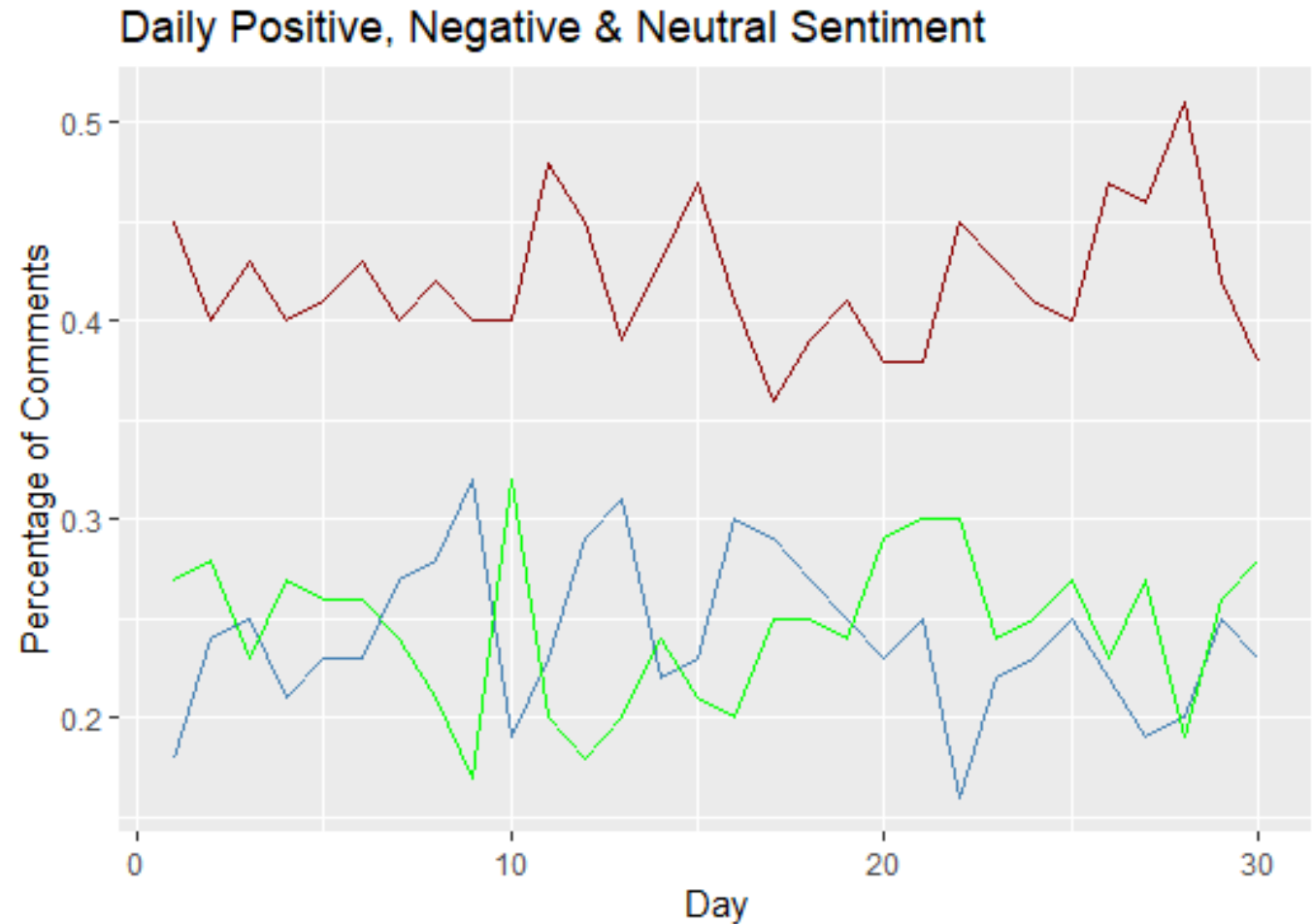
User activity in November

Daily Reddit Posts

Sentiment Analysis Method

- Missing emotion values not filled by get_nrc_sentiment() function classified using the following formula:
    - SUM(Anticipation, Joy, Surprise, Trust) > SUM(Anger, Disgust, Fear, Sadness)
        - Classified as **POSITIVE**
    - SUM(Anticipation, Joy, Surprise, Trust) < SUM(Anger, Disgust, Fear, Sadness)
        - Classified as **NEGATIVE**
    - SUM(Anticipation, Joy, Surprise, Trust) = SUM(Anger, Disgust, Fear, Sadness)
        - Classified as **NEUTRAL**
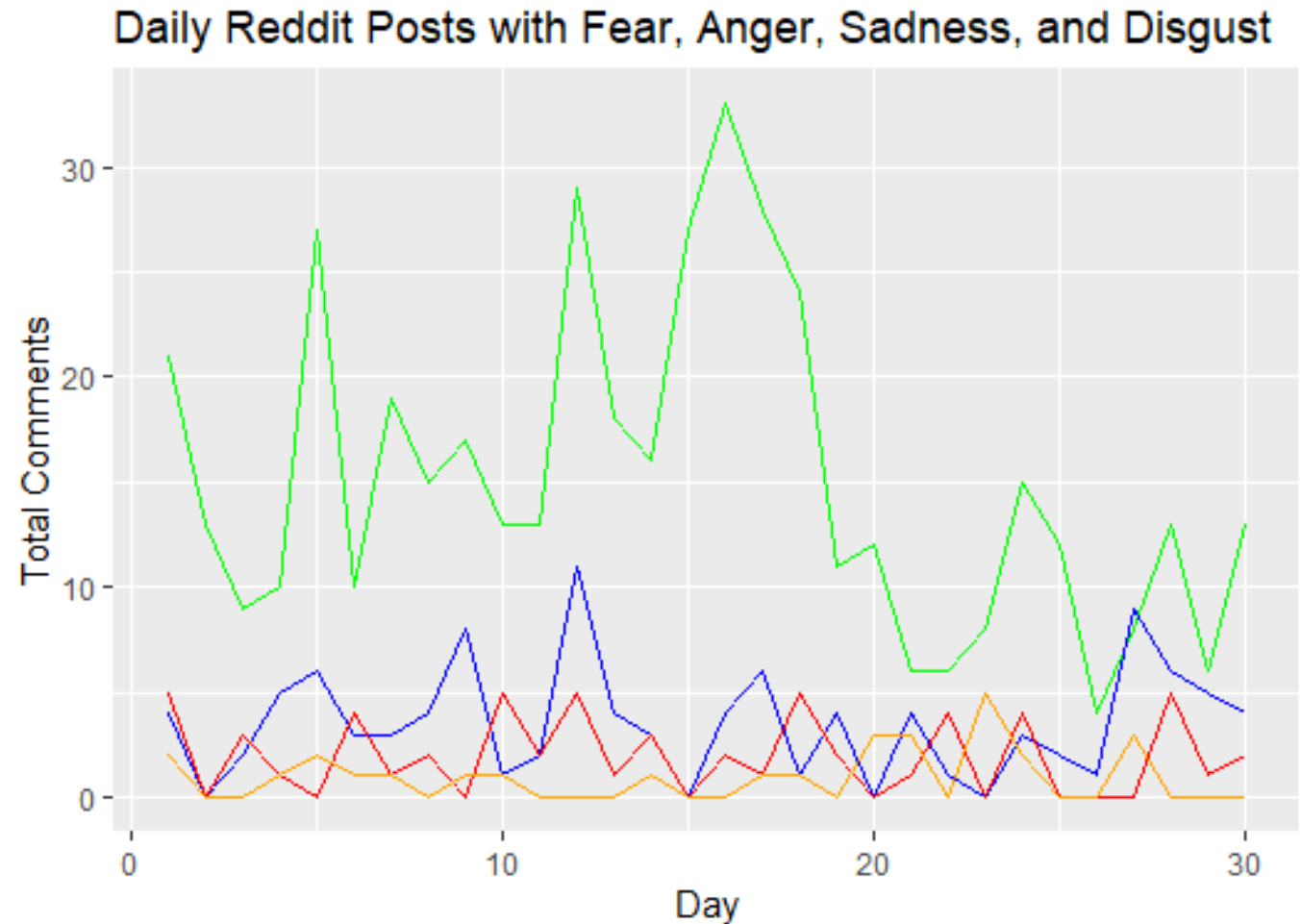- Duplicate comments removed
    - 9,034 rows

Sentiment Analysis

- Red: Negative, Blue: Positive, Green: Neutral

- Similar percentages of positive and neutral comments, much larger percentage of negative comments

- Spike in neutral and negative comments between November 10th and 12th, decrease in positive comments

Daily Positive, Negative & Neutral Sentiment

Negative Emotions Over Time

- Red: Sadness, Anger: Blue, Disgust: Orange, Fear: Green

- Overall, fear is the dominating emotion throughout the month.

- Large spike in fear around November 17th, followed by sharp decline in the following days.

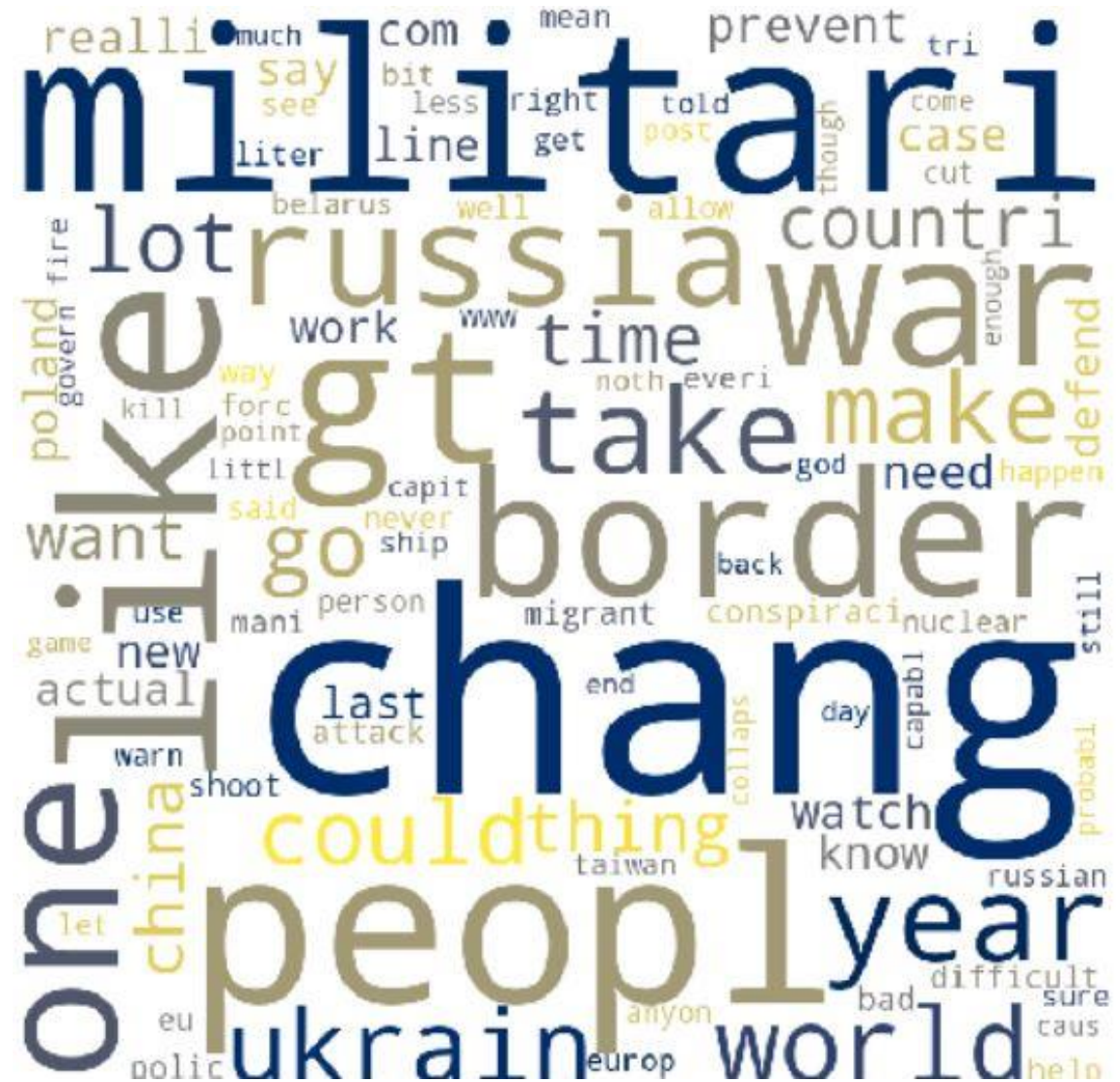Daily Reddit Posts with Fear, Anger, Sadness, and Disgust

Word Cloud of Frequent Terms Between November 11th and November 20th

Why Spike in Fear?

- Created word frequency with posts marked as "Fear"
- Red Flags:
    - Doesn't pertain to Supply Chain issues!

Other Issues

- Georgia Tech

- Other Languages

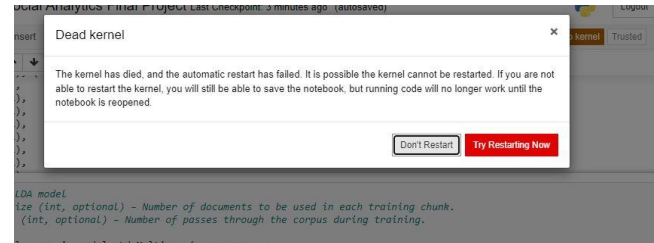| 163 | They are! So the OMS programs at Georgia Tech ... |
182	I don☐t think Georgia Tech offers an analytics...
205	I'm in the Georgia Tech's OMSCS program right ...
208	You don't need a real CS Bachelors, but you do...
989	Look dude, I'm sorry you didn't like my answer...
1002	Define ☐major universities.☐ Georgia Tech and ...

Per la parte piÃ¹ "tech" nel senso moderno, avrebbero dovuto agire 10 anni fa, fare quello che ora fa la wolkswagen (vedi i miliardi di investimenti per centralizzare e modernizzare tutta la parte elettronica e software) invece di aspettare il traino di tesla, senza nemmeno saper calcolare i rischi.

Mi spiace perchÃ© la lettura Ã¨ interessante (ho avuto culo, abbiamo cambiato auto questa primavera... Consegna veloce e auto molto bella) Sia per cosa dici, sia per la domande/osservazioni che ti fanno...
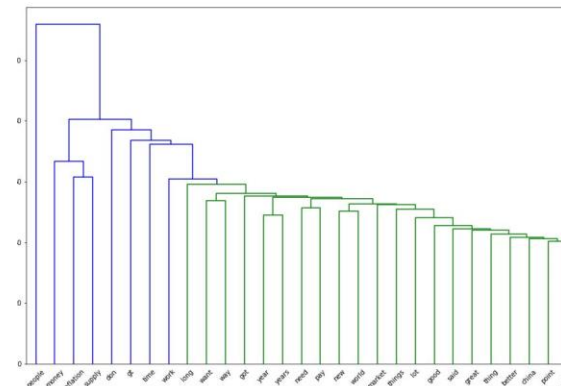
Topic Modeling

- LDA
  - Timed out without result

- K-Means Clustering
  - Tried various "k's"
    - 1 very large Cluster, rest very small
  - Eliminated sparse terms
    - Only left with 7 terms

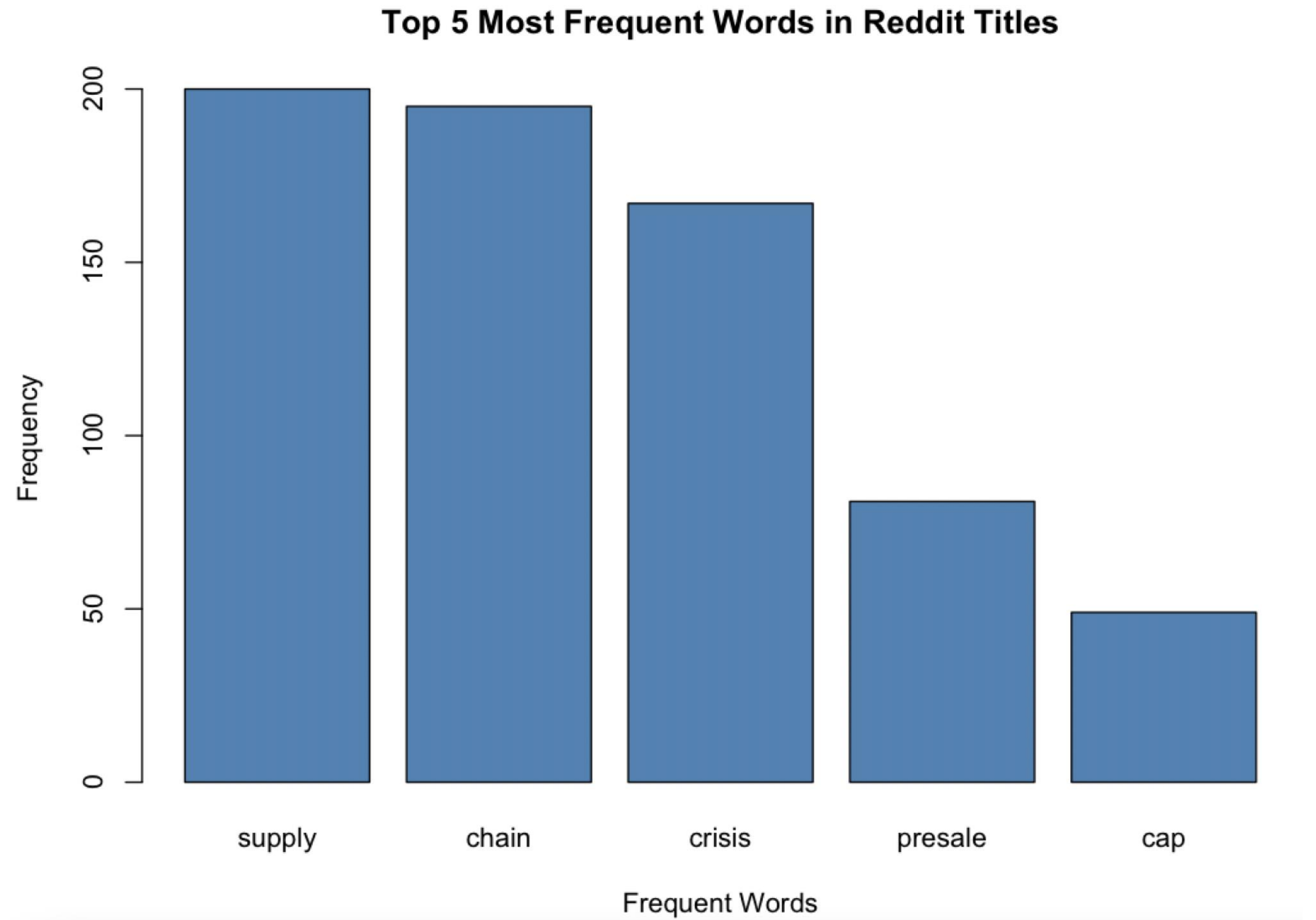- Hierarchical Clustering
  - Same result as K-Means

Changed Approach - Only Titles
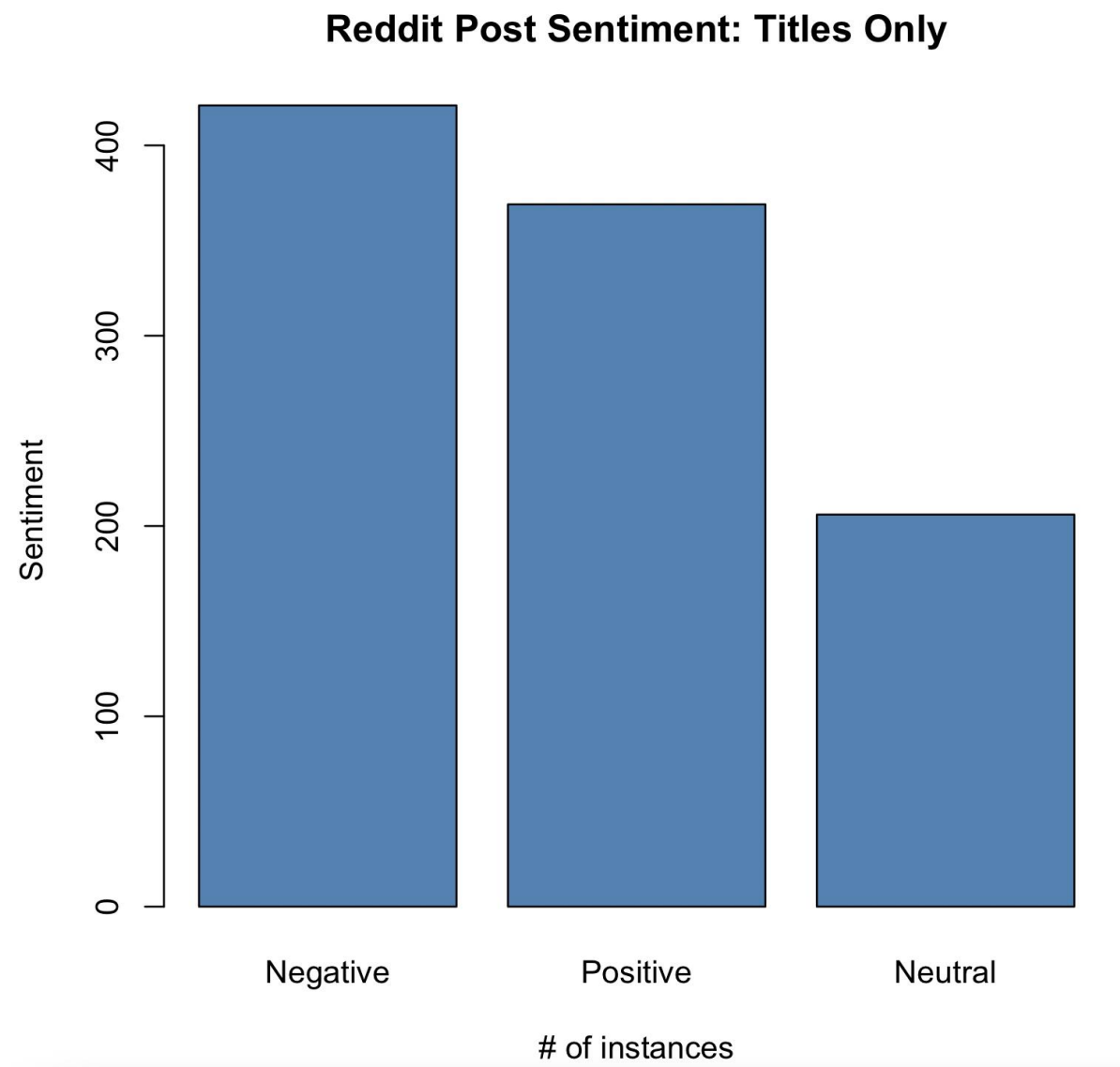
Doesn't pertain to supply chain issues – comments are off topic

Titles **contain our keywords** (supply, chain, crisis)

Frequent Words

Top 5 Most Frequent Words in Reddit Titles

Sentiment Analysis

Reddit Post Sentiment: Titles Only

Why is there so much positive sentiment?
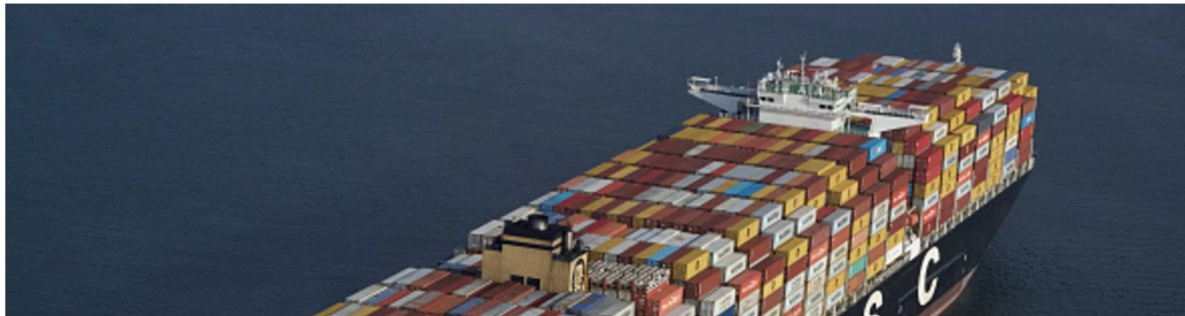
The U.S. Supply-Chain Crisis Is Already Easing

Progress is still slow and too many boats are waiting at the ports, but many problems have at least stopped getting worse.

By Brooke Sutherland +Sign Up

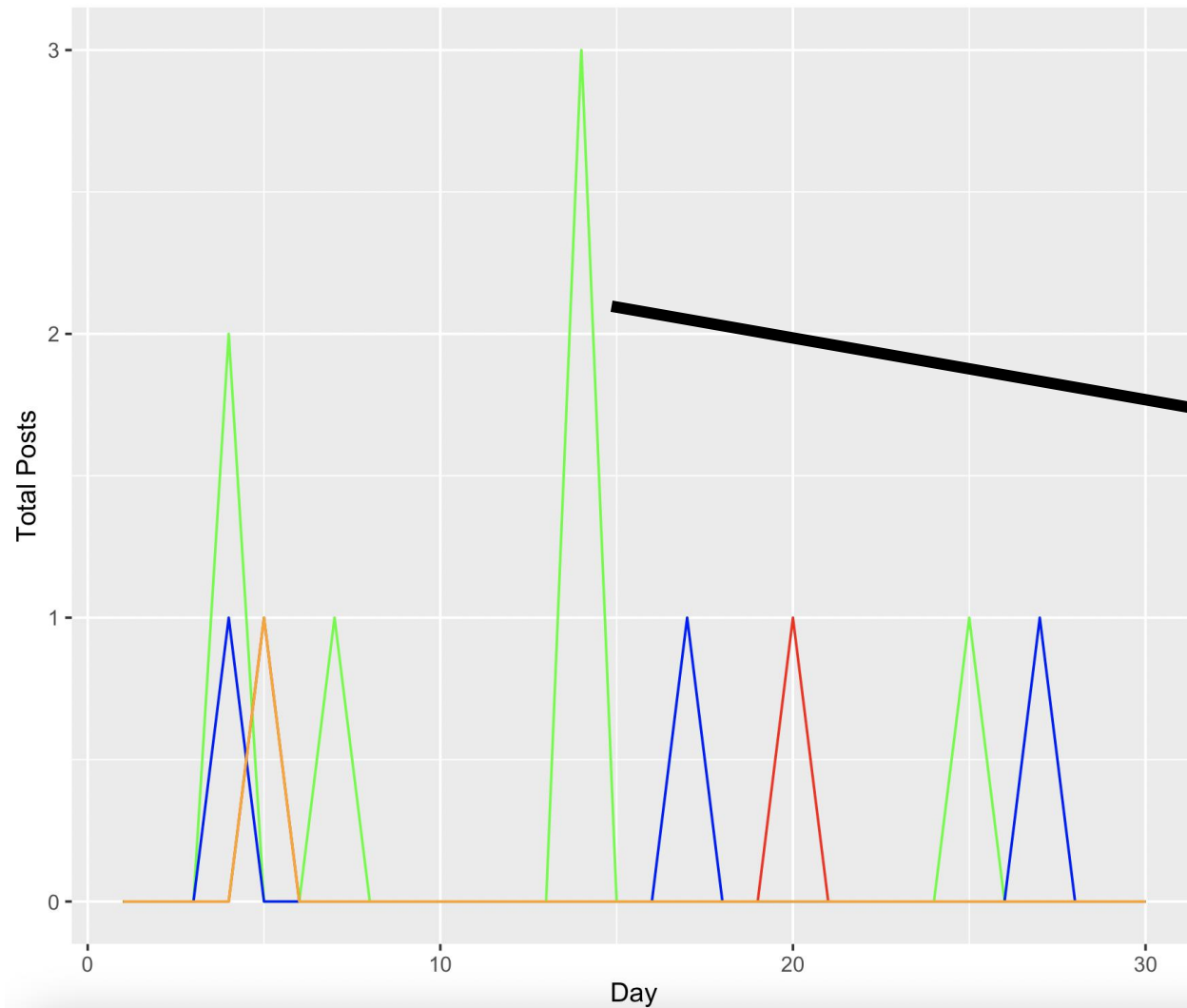November 18, 2021, 12:11 PM CST

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Daily Sentiment – Spike in Fear

Daily Reddit Posts with Fear, Anger, Sadness, and Disgust

Inflation/Supply Chain Watch: November 2021

Inflation/Supply Chain Watch: November 2021

Inflation/Supply Chain Watch: November 2021

Key Takeaways

- Reddit users don't stay on topic
- Generally, users tend to be more optimistic
- Titles are too short for sentiment analysis algorithms to make a clear distinction
- Future Research: Explore other social media platforms
- Future Research: Find smart ways to filter data set