

Assembling News Like Legos

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Selection and Framing

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We mostly learn about the **state of the world** through **intermediaries**:

- **publisher landing pages**: about 1/3 of total desktop browsers news page views
- **social media**: about 1/3 of total desktop browsers news page views

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Three levels of editorial decisions of publishers/journalists:

- **Event selection**: What daily events are covered/prioritized on main homepage?
- **Statement selection**: What statements (facts, quotes or opinions) are included *conditional* on reporting about an event?
- **Framing**: How is a statement *framed* by publisher *conditional* on including it?

Sample event: 6/1/2023 11:45pm EST - NYT versus Breitbart homepage

The New York Times

Arizona Limits Construction Around Phoenix as Its Water Supply Dwindles

Officials raised their concerns enough...
— a potential glimpse of the challenges facing the West as climate change worsens.

Greetings From 'Mexicoland'

A Los Angeles shopping plaza in a province of...
California's Latino boom.

U.S. Debt Ceiling

GOP Demands for More Pentagon Money Slow Debt Limit Bill in Senate

Leaders of both parties argued quick action to avoid a default, but some wanted to consider changes, including adding more military spending to the package.

Recording of Trump Undergoes Growing Evidence in Documents Case

A conversation in which former President Trump is said to have acknowledged that the email was definitely a sensitive document could undercut his defense.

Former President Trump is facing several investigations. See where they stand.

Opinion

Let's Smash the College Admissions Process

PROBIE LETT AND JEREMY ASKEWING

We Spoke With 5 People Who Work With A.I. Here's What Keeps Them Up at Night.

PAUL KRUGMAN

The Case of the Disappearing Debt Disaster

FRANK BRUNE

Demotes 'Went Trump?' They're Out of Their Minds

MICHELLE COFFEE, BOSS SOUTHWELL, GARAGE LOGANS

BREITBART

TRENDING: PRIDE PROPAGANDA 2024 DEBT DEAL BIDEN CRIME FAMILY BORDER CRISIS DEEP STATE UKRAINE AI DANGER

BIDEN BRUTAL FALL AT AIR FORCE GRADUATION

...TRUMP: I HOPE HE WASN'T HURT

EXCLUSIVE - REP. JIM JORDAN: 'NUMBER ONE GOAL' TO END REAUTHORIZATION OF FBI SPI POWERS

EXCLUSIVE: JIM BANKS ASKS PENTAGON TO BAN ALL DRAG QUEEN SHOWS ON MILITARY BASES

REPORT: HUNTER BIDEN'S ATTORNEYS TO USE PRO-BA SCOTUS RULING ON POSSIBLE CRIM CHARGES

MS-13 GANG MEMBERS, RELEASED INTO U.S. BY FEDS, AMONG ILLEGAL ALIENS CHARGED WITH 14-YEAR-OLD BOY'S MURDER

ON OUR RADAR

CHINA AND INDIA RECEIVED RECORD AMOUNTS OF RUSSIAN CRUDE IN 'MAY'

MADURO HENCHMAN: CHILE'S LEFTIST PRESIDENT IS A 'MORON,' 'WORKS FOR THE GRINGOS'

MAINTENANCE SCHEDULED AGAINST

MARKED THREE TECH CRISIS

SOCIAL

BREITBART STORE

LATEST NEWS

Japan: AI Systems Can Use Any Data, from Any Source - Even Illegal Ones 56 mins ago

Brazilian Influencers on China's TikTok Get Famous for Racist 'Banana' Videos Against Children 1 hour ago

Breitbart Business Digest: The Case Against Recession is Building 3 hours ago

Coons: 'I'll Be Tough' to Do Budget Process with Cuts in Debt Limit Bill 2 hours ago

ATF Reaffirms No 2A Rights for Drug Users, Bringing Spotlight Back on Hunter Biden's Purported Gun Crime 2 hours ago

Chicago Mayor Brandon Johnson Applauds \$51M for Migrants Against Objections from Taxpayers 2 hours ago

MOST POPULAR

Joe Biden Takes Huge Fall on Stage at Air Force Academy

China and India Received Record Amounts of Russian Crude in May

President Joe Biden took a huge fall on the stage at the U.S. Air Force Academy graduation ceremony Thursday.

by WENDALL HENNESSY

Sample event: 6/1/2023 11:45pm EST - NYT versus Breitbart homepage

The screenshot shows the New York Times homepage with several articles. The top article is 'Arizona Limits Construction Around Phoenix as Its Water Supply Dwindles'. Other visible headlines include 'Greetings From 'Mexicoland'', 'A Reader asks if she's obligated to pay for her daughter's best friend on family vacation', and 'Former President Trump in face investigations. See where they...

The screenshot shows the Breitbart homepage. A red box highlights the main headline: **BIDEN BRUTAL FALL AT AIR FORCE GRADUATION**. Other headlines include 'CRASH LANDING SPARKS HEALTH SCARE', 'EXCLUSIVE - REP. JIM JORDAN: NUMBER ONE GOAL TO END REAUTHORIZATION OF FBI SPY POWERS', and 'EXCLUSIVE - JIM BANKS ASKS PENTAGON TO BUY ALL DRAG QUEEN SHOWS ON MILITARY BASES'. A navigation bar at the top lists categories like 'PRIME PROPAGANDA', 'BERT DEAL', 'BIDEN CRIME FAMILY', 'BORDER CRISIS', 'DEEP STATE', 'UKRAINE', and 'AI BANISER'.

President Biden fell during airforce graduation ceremony. This was the top news on Breitbart but did not appear among top news in New York Times => **Event selection**

Sample event: 6/1/2023 11:45pm EST - NYT versus Breitbart homepage



The image shows a screenshot of the Breitbart homepage. The layout is a grid of various news articles. A green rectangular box highlights a headline: **BIDEN BRUTAL FALL AT AIR FORCE GRADUATION**. Below this headline is another headline: **CRASH LANDING SPARKS HEALTH SCARE**. A white box with a black border contains the text: **It only appears on NYT homepage once the reader scrolls several screens down.**

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TRUMP: I HOPE HE WASN'T HURT
By KRISTINA WONG

EXCLUSIVE — REP. JIM JORDAN: INSISER ONE GOAL TO END REAUTHORIZATION OF FBI SPY POWERS
By NEAL STRYKER

EXCLUSIVE: JIM BANKS ASSES PENZACON TO BAY ALL DRAG QUEEN SHOWS ON MILITARY BASES
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REPORT: HUNTER BIDEN'S ATTORNEYS TO USE PRO-BA SCOTTS RULING ON POSSIBLE GUN CHARGES
By ANNE BLOOMBERG

MANCHIN ONCE VOTED AGAINST AMENDMENT TO EXPEDITE MOUNTAIN VALLEY PIPELINE

HARVARD HIRES EX-CHICAGO MAYOR LIGHTFOOT TO TEACH PUBLIC HEALTH AND LEADERSHIP

Articles on YouTube
Crude in May
Comments

Sample event: 6/1/2023 11:45pm EST - NYT versus Breitbart article

Biden Falls Onstage at Air Force Commencement

A White House official said President Biden was feeling “totally fine.” He was helped up and walked back to his seat after stumbling.



By **Michael D. Shear**
Reporting from Washington

June 1, 2023

[阅读简体中文版](#) - [阅读繁体中文版](#)

President Biden tripped and fell after delivering a speech and handing out diplomas to graduates of the Air Force Academy in Colorado Springs on Thursday. Mr. Biden, who is 80 years old, was helped up and appeared to recover quickly.

Mr. Biden’s fall was captured on video and spread on social media. He appears to trip, fall to his knees and catch himself with his hands on the floor of the stage. He was helped up by several Air Force officials and Secret Service agents, and he walked back to his seat.

President Joe Biden took a huge fall on stage at the U.S. Air Force Academy graduation ceremony Thursday.

Video shows Biden, 80, start to walk quickly off center stage when he trips and stumbles, tumbling to his knees and nearly ending up on all fours.

Personnel quickly picked him up before he hobbled behind a barrier.

According to the White House pool report, he seemed to trip “on a black sandbag on the stage” but appeared “to be ok and continued to stand until the ceremony ended a few minutes later.”



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He appeared to be in good hands on the stage. A White House official said Biden was feeling “totally fine” after he was helped up and walked back to his seat.

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Only NYT reports the quote of White House official that the President was “totally fine”. ⇒ [Statement selection](#)

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Both publishers report that video captured the fall.

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Jake Schneider
@jacobkschneider · Follow



The Breitbart version of this statement makes the fall appear more dramatic (“nearly ending up on all fours”). ⇒
Framing

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Jake Schneider
@jacobkschneider · Follow



BREAKING: Biden takes a big fall on stage just now at the U.S. Air Force Academy graduation

The NYT headline is also more neutrally worded compared to the Breitbart headline. ⇒
Framing

Observations

Left-leaning and right-leaning publishers appear to ...

- ... cover different events
- ... include different statements
- ... frame the same statements differently

How can we measure this?

Measurement

Event Selection

For each event, we define **partisan event prioritization**:

“In general, would Democrats / Democratic interests want the media to pay attention to this event?”

“In general, would Republicans / Republican interests want the media to pay attention to this event?”

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Q1: If left/right-leaning publications do not engage in event selection there should be no difference in partisan prioritization of top homepage events.

Statement Selection

We similarly define **partisan statement prioritization**:

“Imagine a Democrat and a Republican who each summarize the news of the day. Who would be more likely to include this statement in his or her summary?”

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Q2: If left/right-leaning publications do not engage in statement selection there should be no difference in partisan prioritization on events that *appear in both types* of publications (otherwise statement selection *amplifies* bias).

Statement Selection

For each statement, we define **partisan truth**:

“What percent of Democrats would regard this statement as true based on their view of the evidence?”

“What percent of Republicans would regard this statement as true based on their view of the evidence?”

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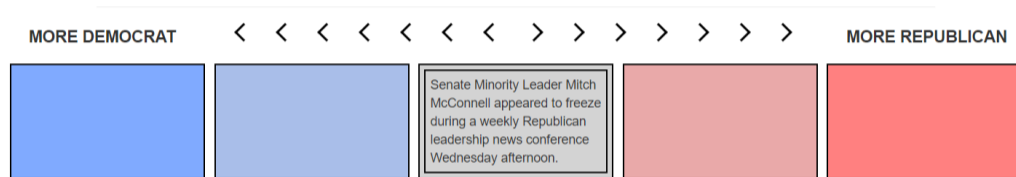
“What percent of Republicans would regard this statement as true based on their view of the evidence?”

Example: Quoting a White House Official that the President was “totally fine” might be believed more Democrats than Republicans.

Q4: Are quotes rather than authors’ own words used to create statements with disputed truth?

Framing

For each statement, we align the news snippets from publishers implementing that statement on a **relatively more Democratic** to **relatively more Republican** scale.



You can also see five text snippets from newspapers below. Click next now.

On Wednesday, Senate Minority Leader Mitch McConnell offered Americans a worrying reminder that our elected leaders are among the oldest in the world. McConnell, R-Ky., had just started his regular news briefing when the 81-year-old suddenly

McConnell - who at 81 years of age is the longest-serving party leader in the history of the U.S. Senate - went silent during his opening remarks at his regular press conference, according to video of the alarming moment.

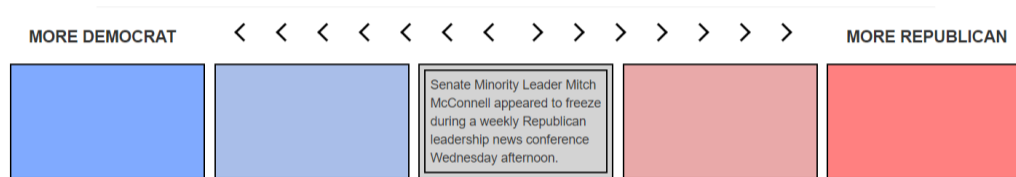
Senate Minority Leader Mitch McConnell suddenly stopped speaking during a weekly Republican leadership news conference Wednesday afternoon, appearing to freeze, and then went silent and was walked away.

Senate Minority Leader Mitch McConnell (R-Ky.) was escorted away during a press conference Wednesday after he froze mid-sentence and took an unusually long pause, causing experts to speculate whether the still-unexplained incident was

Senate Minority Leader Mitch McConnell, R-Ky., appeared to freeze up during a news conference with other Republican leaders following their weekly party luncheon Wednesday afternoon.

Framing

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Q5: If left/right-leaning publications do not engage in framing there should be no difference in partisan prioritization on statements that *appear in both types* of publications (otherwise framing *amplifies* bias).

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video of the alarming moment.

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Model

Events

There are K events. Each event k has:

- *importance* J_k
- set of associated statements S_k of size $|S_k| = n$

$$S_k = S_k^D \cup \hat{S}_k^D \cup \hat{S}_k^R \cup S_k^R$$

S_k^D = immutable Democrat-leaning statement

\hat{S}_k^D = mutable Democrat-leaning statement

\hat{S}_k^R = mutable Republican-leaning statement

S_k^R = immutable Republican-leaning statement

A mutable Democratic-leaning (Republican-leaning) statement can be *reframed* as Republican-leaning (Democrat-leaning). Immutable statements cannot be reframed.

Events

Examples:

- Scandal involving a Democratic Senate candidate \Rightarrow large set $|S_k^R|$ and a small set $|\hat{S}_k^R|$
 \Rightarrow natural Republican talking point with little framing potential for Democrats
- Proposal to raise the federal minimum wage might have similarly sized sets $|S_k^D|$ and $|S_k^R|$
and large sets $|\hat{S}_k^D|$ and $|\hat{S}_k^R| \Rightarrow$ neither a natural Republican nor Democratic talking point
but has lots of framing potential

Articles

An **article** on event k contains a subset of statements $S' \subset S_k$ of size $|S'| = m$ where $m < n$.

- The **natural bias** η_k^* (share of Democratic-leaning statements) for an article on event k equals:

$$\eta_k^* = \frac{|S_k^D| + |\hat{S}_k^D|}{n}$$

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Proposition: If an article is assembled from m randomly selected statements the expected share of Democratic-leaning facts will be η_k^* .

Articles

Framing can increase or decrease the share of left/right-leaning statements.

- The *feasible Democratic bias* $\hat{\eta}^D$ (*Republican bias* $\hat{\eta}^R$) for an article on event k equals:

$$\hat{\eta}_k^D = \frac{\min(|S_k^D| + |\hat{S}_k^D| + |\hat{S}_k^R|, m)}{m}$$

$$\hat{\eta}_k^R = \frac{m - \min(|S_k^R| + |\hat{S}_k^R| + |\hat{S}_k^D|, m)}{m}$$

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$$\hat{\eta}_k^R = \frac{m - \min(|S_k^R| + |\hat{S}_k^R| + |\hat{S}_k^D|, m)}{m}$$

Proposition: The feasible Democratic (Republican) bias satisfies:

$$0 \leq \eta_k^R \leq \eta_k^* \leq \eta_k^D \leq 1$$

Distributional Assumptions

We assume that the average natural bias across all events is $\frac{1}{2}$:

$$\frac{\sum_k \eta_k^*}{K} = \frac{1}{2} \quad (1)$$

Moreover, the average feasible Democratic bias mirror the average feasible Republican bias:

$$\frac{\sum_k \hat{\eta}_k^D}{K} = 1 - \frac{\sum_k \hat{\eta}_k^R}{K} \quad (2)$$

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Intuitively, Democratic and Republican bias are symmetric: across all topics, there are as many Republican-leaning statements as Democrat-leaning ones and the overall potential for framing is symmetric, too.

Publishers

Publisher j writes one article $A_{j,k}$ on each event k with bias $\eta_{k,j}$:

$$\hat{\eta}_k^R \leq \eta_{k,j} \leq \hat{\eta}_k^D \quad (3)$$

$(\eta_{k,j})$ captures statement selection and framing.

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The publishers orders articles on its homepage according to the sequence P_j which is a permutation of the K events.

$P_j(r)$: event index of the r th article on homepage

P_j captures event selection.

Consumers

A **consumer** select one publisher j and read articles on all events in order.

- They pay attention $a_r > 0$ to the r th article.
- (a_r) is a decreasing sequence

Consumers pay more attention to the top of the homepage than the bottom.

Consumers

There are $2N$ consumers: N Democrats and N Republicans

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A Democrat consumer derives utility U_j^D from reading publisher j :

$$U_j^D = \sum_r a_r \underbrace{\left(J_{P_j(r)} + \eta_{P_j(r),j} \right)}_{\text{utility of } r\text{th article}} - p_j$$

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The r th article generates utility $J_{P_j(r)}$ from importance of event and $\eta_{P_j(r)}$ from the extent that it reflects the Democratic viewpoint (Mullainathan and Shleifer, QJE 2005).

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A **Republican consumer** derives utility U_j^R from reading publisher j :

$$U_j^R = \sum_r a_r \underbrace{\left(J_{P_j(r)} + 1 - \eta_{P_j(r),j} \right)}_{\text{utility of } r\text{th article}} - p_j$$

Timing of Entry Game

- 1 There are $J > 2$ potential publishers.
- 2 Every publisher decided whether to enter or not. Entry has fixed cost $F > 0$.
- 3 Publishers observe events, write articles and organize their homepages and set a price p_j .
- 4 Every consumer observes utility from consuming each paper and decide which publisher to buy (if any).

Since a publisher transmits information and consumers observe utility *before* reading the publication why do they buy the paper at all?

- This is a simplifying assumption.
- Consumer might randomly sample a small number of articles.
- Consumers also buy newspapers repeatedly and might punish deviating newspapers by switching away from them.

Unbiased and Optimally Biased Publishers

Definition: An unbiased publisher has average bias $\frac{1}{2}$ and orders news by importance J_k . We will denote this ordering by importance with $P^*(r)$.

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Definition: *A publisher with complete Republican bias writes articles with feasible bias $\hat{\eta}_k^R$ and orders articles according to $J_k + 1 - \hat{\eta}_k^R$.*

Lemma: *A publisher with complete Democratic (Republican) bias maximizes the utility of a Democratic (Republican) consumer.*

Equilibrium Characterization: SPE

Lemma: *For any SPE, either 0, 1 or 2 publishers enter the market.*

- Two publishers maximize the utility of consumers by taking complete Democratic/Republican bias, respectively.
- Additional entry competes away profits under price competition.

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Lemma: *If a single publisher enters it will be unbiased.*

- The joint per-article utility of a Democratic and republican consumer on event k equals $2J_k + 1$ (regardless of the bias of the article).
- Utility will be maximized by ordering articles by importance.
- If the publisher would be biased the utility of a Democratic and a Republican consumer would not be equal – since the publisher can only charge the minimum utility as price this would reduce profits.

Equilibrium Characterization: SPE

Lemma: *A second publisher will enter the market iff*

$$\sum a_r \left(\hat{\eta}_{P^*(r)}^D - \hat{\eta}_{P^*(r)}^R \right) = \Delta > F \quad (4)$$

Equilibrium Characterization: SPE

Lemma: *A second publisher will enter the market iff*

$$\sum a_r \left(\hat{\eta}_{P^*(r)}^D - \hat{\eta}_{P^*(r)}^R \right) = \Delta > F \quad (4)$$

Summary:

- When $F > \Delta$ then the market supports either no publisher or a single unbiased one
 \Rightarrow **no event or statement selection, no framing**
- When $F < \Delta$ then there will be two publishers – one with complete Democratic bias and one with complete Republican bias \Rightarrow technological progress (lower F) induces **event and statement selection and framing**

Empirical Methodology: Raw Data

Publishers

We scrape the homepages of 14 publishers (daily for 1/1/2020-12/31/2020).

cnn.com
huffingtonpost.com
washingtonpost.com

bbc.com
nytimes.com
theguardian.com
vox.com

abcnews.com
nbcnews.com
usatoday.com
wsj.com


breitbart.com
foxnews.com
nypost.com

Example: nbcnews.com

BREAKING: Minnesota Supreme Court rejects effort to keep Trump off 2024 ballot

NBC NEWS ISRAEL-HAMAS WAR TRUMP FRAUD TRIAL ELECTION RESULTS THIRD GOP DEBATE U.S. NEWS WORLD BUSINESS WATCH LIVE

U.S., Israel and Qatar discussing pause in Gaza fighting, diplomats say



LIVE

- 21 ago Netanyahu rejects cease-fire and addresses violence in West Bank
- 21 ago Tributes pour in for famous sweet seller of 'the poor's kunafa' in Gaza
- 21 ago Gazans flee the north as Israel issues another warning to evacuate
- 21 ago Israeli police demolish house of teen accused of stabbing officer in February

NBC NEWS NOW

← Use to search

• **Live / Hallie Jackson NOW**

LATEST NEWS

- 15m ago Vatican says transgender people can be baptized
- 29m ago Feds make arrests in connection with 'prostitution network' whose clients allegedly included politicians
- 43m ago Federal staffers recommend major design changes to infant loungers after the deaths of dozens of babies

PAID CONTENT

6 tips for finding the right financial advice

NBC News Brand Studio

- 45m ago Minnesota Supreme Court dismisses effort to block Trump from state's primary ballot

ISRAEL-HAMAS WAR


An estimated 50,000 civilians flee as Israel says troops enter the 'heart' of Gaza City

Suspect in slaying of Jewish community leader Samantha Woolf is in custody, Detroit police say

Synagogue and Jewish community center in Montreal hit by attempted firebomb attack

Trump fraud trial

Ivanka Trump testifies she didn't know much about her father's financial statements in fraud trial




Example: nbcnews.com

BREAKING: Minnesota Supreme Court rejects effort to keep Trump off 2024 ballot

NEWS ISRAEL-HAMAS WAR TRUMP FRAUD TRIAL ELECTION RESULTS THIRD GOP DEBATE U.S. NEWS WORLD BUSINESS WATCH LIVE

U.S., Israel and Qatar discussing pause in Gaza fighting, diplomats say



- 2h ago Netanyahu rejects cease-fire and addresses violence in West Bank
- 2h ago Tributes pour in for famous sweet seller of 'the poor's kunafa' in Gaza
- 2h ago Gazans flee the north as Israel issues another warning to evacuate
- 2h ago Israeli police demolish house of teen accused of stabbing officer in February

NBC NEWS NOW

Use to stream


• Live / **Hallie Jackson NOW**

LATEST NEWS

- 15h ago Vatican says transgender people can be baptized
- 20h ago
- 45h ago Minnesota Supreme Court dismisses effort to block Trump from state's primary ballot

Trump fraud trial

Ivanka Trump testifies she didn't know much about her father's financial statements in fraud trial




We capture all headlines (x/y coordinate and fontsize) on homepage (as well as the article text).

Example: nbcnews.com

BREAKING: Minnesota Supreme Court rejects effort to keep Trump off 2024 ballot

NBC NEWS ISRAEL-HAMAS WAR TRUMP FRAUD TRIAL ELECTION RESULTS THIRD GOP DEBATE U.S. NEWS WORLD BUSINESS WATCH LIVE

U.S., Israel and Qatar discussing pause in Gaza fighting, diplomats say



- 21 ago Netanyahu rejects cease-fire and addresses violence in West Bank
- 2h ago Tributes pour in for famous sweet seller of poor's 'kunafa' in Gaza
- 2h ago Gazans flee the north as Israel issues another warning to evacuate
- 2h ago Israeli police demolish house of teen accused stabbing officer in February

NBC NEWS NOW

← Use to search

We identify top 5 headlines.

'prostitution network' whose clients allegedly included politicians


43m ago Federal staffers recommend major design changes to infant loungers after the deaths of dozens of babies

PAID CONTENT
6 tips for finding the right financial advice
NBC News Brand Studio

45m ago Minnesota Supreme Court dismisses effort to block Trump from state's primary ballot

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NBC NEWS ISRAEL-HAMAS WAR TRUMP FRAUD TRIAL ELECTION RESULTS THIRD GOP DEBATE U.S. NEWS WORLD BUSINESS WATCH LIVE

U.S., Israel and Qatar discussing pause in Gaza fighting, diplomats say



2h ago
Netanyahu rejects cease-fire and addresses violence in West Bank

2h ago
Tributes pour in for famous swimmer's 'kumasa' in Gaza

2h ago
Gazans flee the north as Israel warns to evacuate

2h ago
Israeli police demolish house of stabbing officer in February

allegedly included politicians


43m ago
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PAID CONTENT
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NBC News Brand Studio

45m ago
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Trump fraud trial

Ivanka Trump testifies she didn't know much about her father's financial statements in fraud trial



This gives us $5 \times 14 = 70$ daily articles.

Empirical Methodology: GPT-4-32k

GPT-4-32k Tasks

① Data cleaning

- remove bad text (ads etc.)
- remove “live” articles, video articles

GPT-4-32k Tasks

- 1 Data cleaning
 - remove bad text (ads etc.)
 - remove “live” articles, video articles
- 2 Summarize articles

GPT-4-32k Tasks

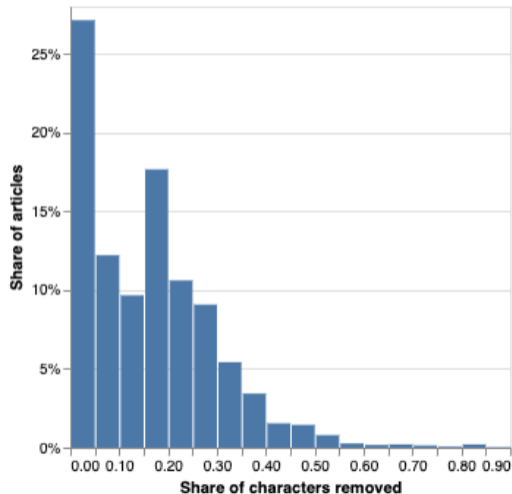
- 1 Data cleaning
 - remove bad text (ads etc.)
 - remove “live” articles, video articles
- 2 Summarize articles
- 3 Cluster articles by “events” (“stories”)

GPT-4-32k Tasks

- 1 Data cleaning
 - remove bad text (ads etc.)
 - remove “live” articles, video articles
- 2 Summarize articles
- 3 Cluster articles by “events” (“stories”)
- 4 Split all articles within event into “statements”
 - statement is a self-contained *factual statement*, *quote* or *opinion*
 - group identical (but possibly similarly phrased statements) into clusters

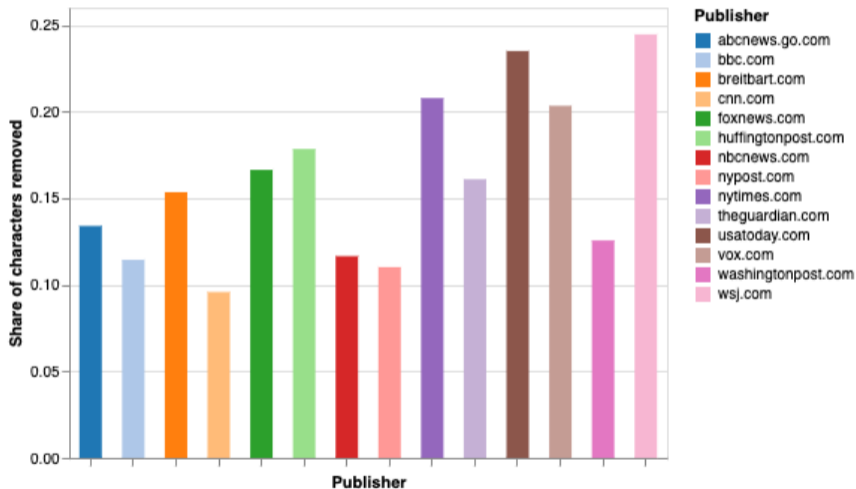
ChatGPT-4-32k has a *context window* of up to 32,768 tokens (1 token \approx 1 word) \Rightarrow able to process groups of articles in a single iteration

Step 1: Token Cleaning



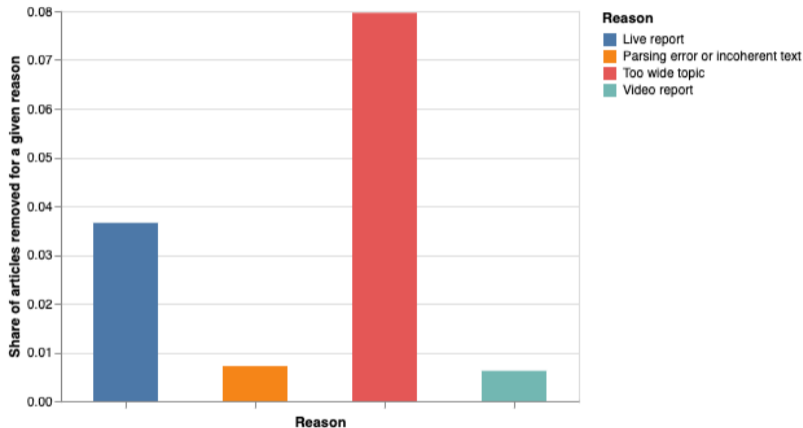
≈ 15% of article text are ads, privacy statements etc.

Step 1: Token Cleaning



Similar attrition across 14 publishers.

Step 1: Article Cleaning



13% of articles cover expansive topics (such as investigative article), are blog-like “live articles”. Less than 1% are videos or are badly parsed.

Step 2: Summarization Query with GPT-4-32k

[system] You are an assistant that helps people find information.

[user] Summarize the following news article in maximum 100 words: $\text{\textit{article text}}$

[assistant] $\text{\textit{summary}}$

Step 2: Summarization Query with GPT-4-32k

[system] You are an assistant that helps people find information.

[user] Summarize the following news article in maximum 100 words: j article text i

[assistant] The United States will send approximately 3,000 extra troops to the Middle East as tensions rise after the US government ordered the killing of Iranian General Qasem Soleimani. The soldiers will be sent to Kuwait to bolster existing forces, according to a Pentagon spokesperson. Around 14,000 US troops have been deployed to the Middle East since May. The move follows an airstrike on Soleimani's convoy near Baghdad International Airport on Thursday, which has led to threats of "harsh retaliation" from Iran, prompting calls for caution from Democrats.

Steps 2: 14 publishers, 5 article summaries per publisher

Summary 1	Summary 1	Summary 1	Summary 1	Summary 1	Summary 1	Summary 1
Summary 2	Summary 2	Summary 2	Summary 2	Summary 2	Summary 2	Summary 2
Summary 3	Summary 3	Summary 3	Summary 3	Summary 3	Summary 3	Summary 3
Summary 4	Summary 4	Summary 4	Summary 4	Summary 4	Summary 4	Summary 4
Summary 5	Summary 5	Summary 5	Summary 5	Summary 5	Summary 5	Summary 5
Summary 1	Summary 1	Summary 1	Summary 1	Summary 1	Summary 1	Summary 1
Summary 2	Summary 2	Summary 2	Summary 2	Summary 2	Summary 2	Summary 2
Summary 3	Summary 3	Summary 3	Summary 3	Summary 3	Summary 3	Summary 3
Summary 4	Summary 4	Summary 4	Summary 4	Summary 4	Summary 4	Summary 4
Summary 5	Summary 5	Summary 5	Summary 5	Summary 5	Summary 5	Summary 5

Steps 2: 14 publishers, 5 article summaries per publisher



(minus 13% videos, live feeds etc.)

Step 3: Clustering of Summaries

```

1: Initialize ArticleSummaries, Clusters  $\leftarrow \emptyset$ 
2: while ArticleSummaries  $\neq \emptyset$  do
3:   Topic  $\leftarrow$  TopicQuery(ArticleSummaries)
4:   TopicSpecific  $\leftarrow$  SpecificityQuery(Topic)
5:   if NOT TopicSpecific then
6:     Topic  $\leftarrow$  SpecifyTopicQuery(Topic)
7:   end if
8:   Initialize CurrentCluster  $\leftarrow \emptyset$ 
9:   for each ArticleSummary  $\in$  ArticleSummaries do
10:    IsMember  $\leftarrow$  MemberQuery(Topic, ArticleSummary)
11:    if IsMember then
12:      Append ArticleSummary to CurrentCluster
13:      Remove ArticleSummary from ArticleSummaries
14:    end if
15:  end for
16:  Append CurrentCluster to Clusters
17: end while

```

Step 3: Clustering of Summaries - Topic Query

We start by finding the most frequent news event within set of summaries ...

[system] You are a helpful assistant that analyzes news articles.

[user] `ijson` serialized article summaries`i`

[user] Consider the article summaries provided in a JSON above. Provide a single sentence that describes the most frequently discussed specific news event in these articles.

[assistant] `itopic``i`

Step 3: Clustering of Summaries - Topic Query Example

We start by finding the most frequent news event within set of summaries ...

[system] You are a helpful assistant that analyzes news articles.

[user] `iJSON serialized article summaries`

[user] Consider the article summaries provided in a JSON above. Provide a single sentence that describes the most frequently discussed specific news event in these articles.

[assistant] The most frequently discussed specific news event in these articles is the killing of Iranian General Qassem Soleimani in a US airstrike ordered by President Donald Trump.

Step 3: Clustering of Summaries - Member Query

.. then we cycle over all summaries and ask which ones belong to the event.

[system] You are a helpful assistant that analyzes news articles.

[user] `json` serialized article summaries`;`

[user] Consider the article summaries provided in a JSON above. Provide a single sentence that describes the most frequently discussed specific news event in these articles.

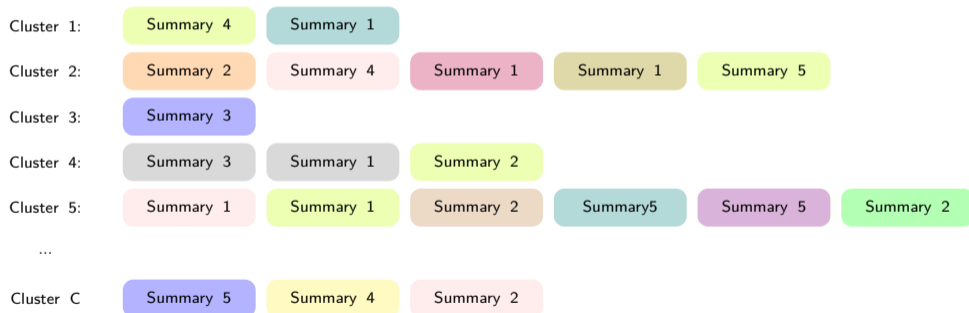
[assistant] `topic;`

[user] Does the following article primarily focus on discussing the topic you found? Answer with a simple yes or no. `article summary;`

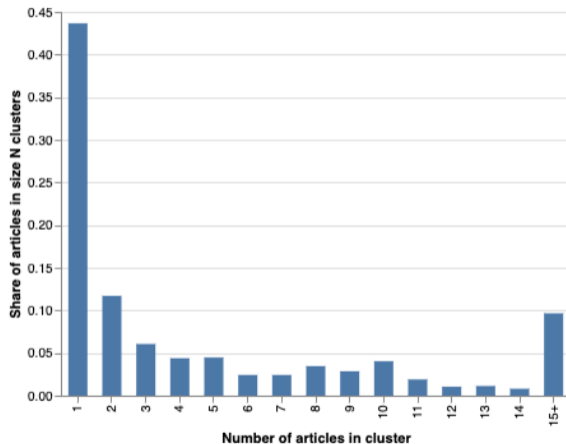
[assistant] `yes/no;`

Steps 3: Obtain Clusters

We repeat this algorithm until we have exhausted all summaries:

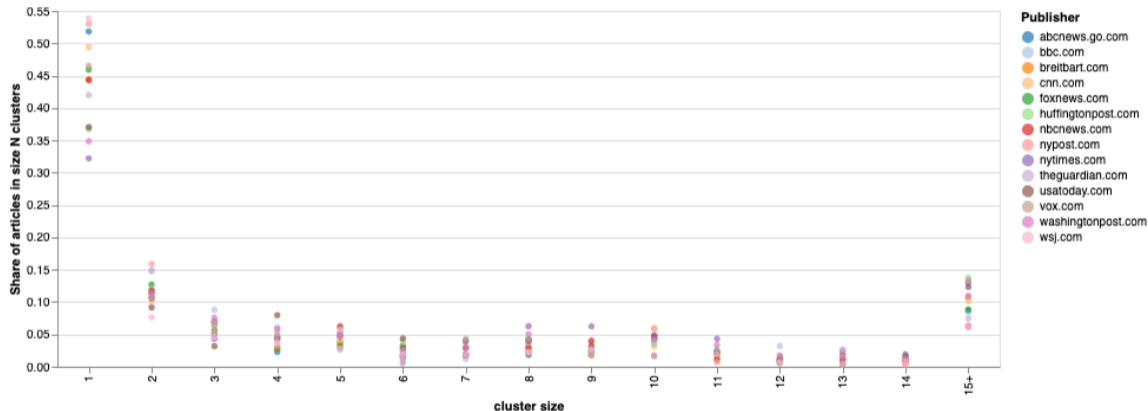


Step 3: Cluster Distribution



57% of articles belong to clusters with at least 2 articles.

Step 3: Cluster Distribution



Similar cluster distribution across 14 publishers.

Step 4: Common Statement Query

We then cycle over all events, combine the *deduplicated original text* across all articles in that event and extract the unique statements as bullet points ...

[system] You are an assistant that helps people find important information.

[user] Provide short and self-contained bullet points with the most important unique statements of the following paragraphs: $\{ \text{deduplicated text of all articles in the cluster} \}$

[assistant] $\{ \text{bullet points with statements} \}$

Step 4: Tail Statement Query

... we also ask GPT to swoop up leftover statements for each article in the event.

[system] You are an assistant that helps people find important information.

[user] Provide short and self-contained bullet points with the most important unique statements of the following paragraphs: $\{ \text{deduplicated text of all articles in the cluster} \}$

[assistant] $\{ \text{bullet points with statements} \}$

[user] Look at each article and check if they contain any additional important information that differs significantly from what you listed previously. If they do then provide short and self-contained bullet points with all of these pieces of information in a JSON dictionary. In this JSON dictionary the keys should correspond to the articles and the values should be lists with the bullet points. If an article does not contain such information then the corresponding value should be an empty list.

Step 4: Statement Member Queries

... finally we also ask GPT *for each article* to determine which of the just identified common and tail queries appear in it.

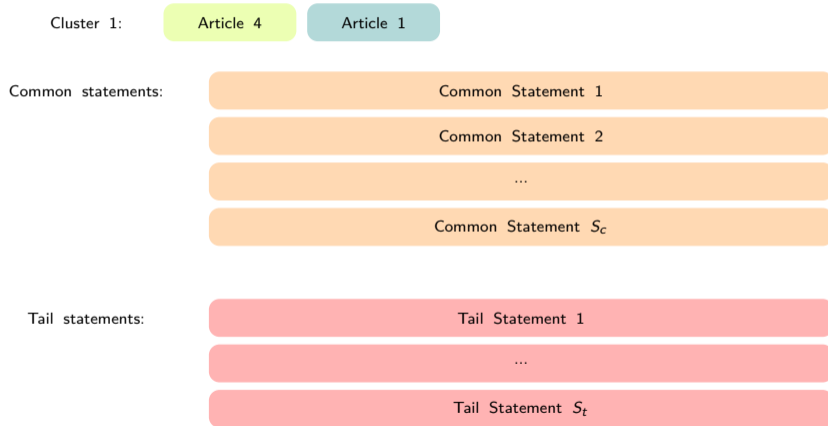
...

[assistant] $i\text{JSON}_i$

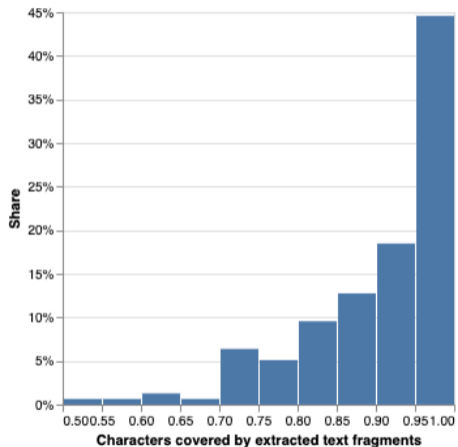
[user] Look at each bullet point in the dictionary you have just provided. Check if the information in each bullet point is present in any of the other articles. Provide another dictionary with the same structure in which a bullet point is only kept if that piece of information is unique to the article and nothing similar is present in any of the other articles.

[assistant] $i\text{JSON}_i$

Step 4: Clusters with statements

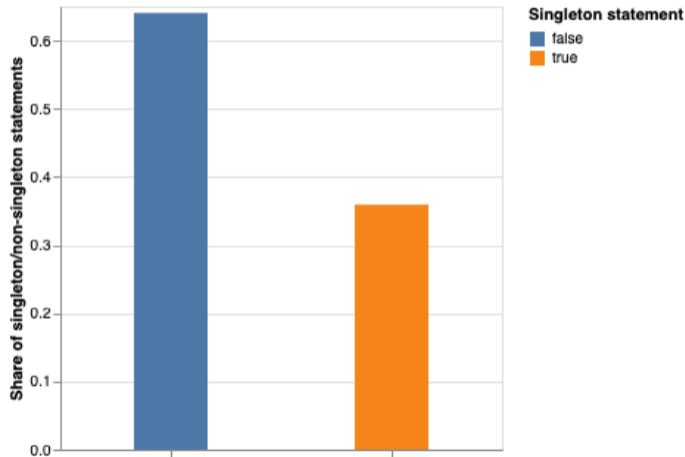


Step 4: Coverage



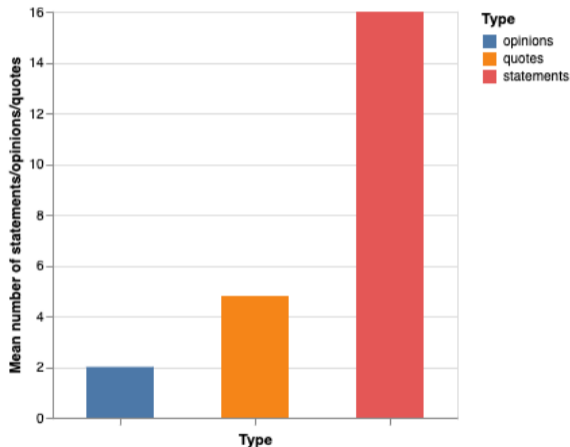
More than 90% of article text is assigned to statements.

Step 4: Non-singleton Clusters



63% of statements are not singletons (1/3 of text is unique to publisher).

Step 4: Author's Own Words, Quotes, Opinions



9% of statements are opinions, 20% are quotes and 71% author's own words

Empirical Methodology: Evaluation

Scaling Human Evaluation

We use human raters to evaluate event and statement selection as well as framing.

- Every human rater evaluates one random event including statement selection and framing.
- Larger events are divided into multiple tasks (maximum 10 statements per rater).
- Every HIT is allocated to two random raters whose bonus depends on the level of agreement.

Scaling Human Evaluation

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- Every human rater evaluates one random event including statement selection and framing.
- Larger events are divided into multiple tasks (maximum 10 statements per rater).
- Every HIT is allocated to two random raters whose bonus depends on the level of agreement.

We scale evaluation by also using GPT-4-32k and then compare interrater agreement with GPT/rater agreement.

Screening

Before proceeding with the survey we need you to answer the questions on the right panel.

Answer the following questions related to U.S. politics.

Who is the current Secretary of State?

Victoria Nuland Antony Blinken Wendy Sherman Mike Pompeo

Which party controls the House of Representatives?

Republicans Democrats

How many justices currently serving in the Supreme Court of the United States were appointed by a Republican president?

4 5 6 7 8 9

Continue to next task

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4 5 6 7 8 9

Continue to next task

We screen out participants who fail to correctly answer a one-page politics quiz.

Reading Comprehension

Below is a short summary of a news event from 02/23/2020. Please read this summary carefully!

U.S. intelligence officials have reportedly briefed lawmakers that Russia is allegedly interfering in the 2020 U.S. presidential election with attempts to help President Trump. However, conflicting statements emerged with Vice President Mike Pence's chief of staff denying such intelligence exists. President Trump has also claimed a potential leak from the briefing. The U.S. intelligence community's election security official may have overstated the assessment's nuance during the briefing, according to some national security officials. Intelligence also suggested Russia might be attempting to aid the campaign of Democratic candidate Bernie Sanders.

Read the summary and answer some questions about the news event.

Please take time to read the summary of the news event before you proceed.

I have read the summary of the news event.

Which U.S. presidential candidates were Russia allegedly attempting to aid in the 2020 elections?

- President Trump and Hillary Clinton
- President Trump and Bernie Sanders
- Bernie Sanders and Joe Biden
- Hillary Clinton and Joe Biden

Who among the following denied the existence of the intelligence that Russia is allegedly interfering in the 2020 U.S. presidential election?

- President Donald Trump
- The U.S. intelligence community's election security official
- National security officials
- Vice President Mike Pence's chief of staff

Continue to next task

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- Bernie Sanders and Joe Biden
- Hillary Clinton and Joe Biden

Who among the following denied the existence of the intelligence that Russia is allegedly interfering in the 2020 U.S. presidential election?

- President Donald Trump
- The U.S. intelligence community's election security official

Participant has to read summary of event and answer GPT-generated quiz about this specific event:

- At least one question asks specifically about the time frame of the event (year 2020).
- Participants who make a mistake are screened out.

Event Selection

Below is a short summary of a news event from 02/23/2020. Please read this summary carefully!

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Familiarity with event ... 0/2 completed

Partisan interest - Democrats

In general, would Democrats / Democratic interests want the media to pay attention to this event?

1 2 3 4 5 Unsure
 Definitely not Definitely

How confident are you with your answer to the previous question?

1 2 3 4 5
 Not Very Confident Very Confident

Partisan interest - Republicans ... 0/2 completed

Continue to next task

Event Selection

Below is a short summary of a news event from 02/23/2020. Please read this summary carefully!

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Familiarity with event ... 0/2 completed

Partisan interest - Democrats

In general, would Democrats / Democratic interests want the media to pay attention to this event?

1 2 3 4 5 Unsure
 Definitely not Definitely

How confident are you with your answer to the previous question?

1 2 3 4 5
 Not Very Confident Very Confident

Partisan interest - Republicans ... 0/2 completed

Continue to next task

Participant answers on 1-5 scale how strongly Democrats and Republicans would want the media to pay attention to this event.

Statement Selection

Now consider the statement related to this news event in the green box below the event summary and answer the questions on the right panel. This statement was extracted from a newspaper reporting about the summarized event. You can still see the same summary of the news event from 02/23/2020 in the gray box below.

U.S. intelligence officials have reportedly briefed lawmakers that Russia is allegedly interfering in the 2020 U.S. presidential election with attempts to help President Trump. However, conflicting statements emerged with Vice President Mike Pence's chief of staff denying such intelligence exists. President Trump has also claimed a potential leak from the briefing. The U.S. intelligence community's election security official may have overstated the assessment's nuance during the briefing, according to some national security officials. Intelligence also suggested Russia might be attempting to aid the campaign of Democratic candidate Bernie Sanders.

U.S. officials reported that Russia is allegedly trying to aid Senator Bernie Sanders' prospects in the 2020 presidential election.

Additional information about people and entities in this statement:

U.S. officials: People who held positions in U.S. government agencies in 2020

Russia: A country in Eastern Europe and North Asia

Senator Bernie Sanders: An American politician who was a U.S. Senator from Vermont and a Democratic presidential candidate in the 2020 U.S. presidential election

Answer the following questions regarding the statement. Remember that your bonus payment will increase the more your answers agree with the answers of others who might answer the same question about the same statement.

What percent of democrats would regard this statement as true based on their view of the evidence?

0% 20% 40% 60% 80% 100% Unsure

What percent of republicans would regard this statement as true based on their view of the evidence?

0% 20% 40% 60% 80% 100% Unsure

Imagine a Democrat and a Republican who each summarize the news of the day. Who would be more likely to include this statement in his or her summary?

Much more likely the Democrat More likely the Democrat Equally likely More likely the Republican Much more likely the Republican Unsure

Continue to next task

Statement Selection

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U.S. officials
presidential

Additional info

U.S. officials:
Russia: A cou
Senator Berni
2020 U.S. pre

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0% 20% 40% 60% 80% 100% Unsure

What percent of republicans would regard this statement as true based on their view of the evidence?

0% 20% 40% 60% 80% 100% Unsure

Participants report the probability that a Democrat/Republicans would regard the author's own words as true:

- For quotes, we ask the probability that a partisan agrees with the quote.
- For opinions, we ask the probability that a partisan agrees with the opinion.

ould be more

Unsure

Statement Selection

Now consider the statement related to this news event in the green box below the event summary and answer the questions on the right panel. This statement was extracted from a newspaper reporting about the summarized event. You can still see the same summary of the news event from 02/23/2020 in the gray box below.

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Answer the following questions regarding the statement. Remember that your bonus payment will increase the more your answers agree with the answers of others who might answer the same question about the same statement.

What percent of democrats would regard this statement as true based on their view of the evidence?



What percent of republicans would regard this statement as true based on their view of the evidence?



Imagine a Democrat and a Republican who each summarize the news of the day. Who would be more likely to include this statement in his or her summary?

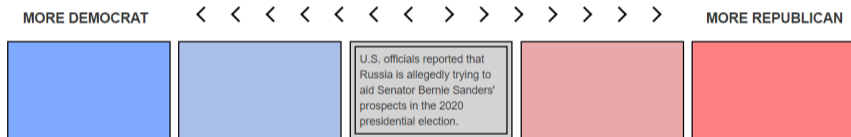


We also ask on a 5-point scale whether Democrats or Republicans would emphasize this statement more.

Framing

As a reminder, you can see the event summary below.

U.S. intelligence officials have reportedly briefed lawmakers that Russia is allegedly interfering in the 2020 U.S. presidential election with attempts to help President Trump. However, conflicting statements emerged with Vice President Mike Pence's chief of staff denying such intelligence exists. President Trump has also claimed a potential leak from the briefing. The U.S. intelligence community's election security official may have overstated the assessment's nuance during the briefing, according to some national security officials. Intelligence also suggested Russia might be attempting to aid the campaign of Democratic candidate Bernie Sanders.



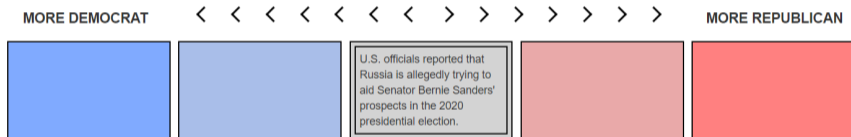
Remember: You have to compare snippets from newspapers relative to this statement.

As Breitbart News reported, U.S. officials have warned Sanders that Russia is attempting to enhance his prospects of winning the White House in 2020, sources familiar with the matter told the Washington Post. [...] President Donald Trump and Congressional lawmakers have also received briefings regarding the Kremlin's efforts	The US intelligence community's top election security official appears to have overstated the intelligence community's formal assessment of Russian interference in the 2020 election, omitting important nuance during a briefing with lawmakers earlier this month, three national security officials told CNN. [...] CBS's chief	Then, it was reported that U.S. intelligence officials had briefed Vermont Sen. Bernie Sanders that Russia was trying to help his campaign too, although it was unclear how or why the alleged support for the self-described democratic socialist was occurring. [...] For example, Dan Pfeiffer, a onetime adviser to former President Obama, went so far	Separately, U.S. intelligence officials last month told Sen. Bernie Sanders' (I-Vt.) presidential campaign that the Kremlin was apparently also seeking to help the Democratic candidate's bid.	It was also reported this week that Trump, congressional leaders and Bernie Sanders himself were briefed that Moscow was repeating another tactic from 2016 and backing the Vermont senator in the Democratic primary.
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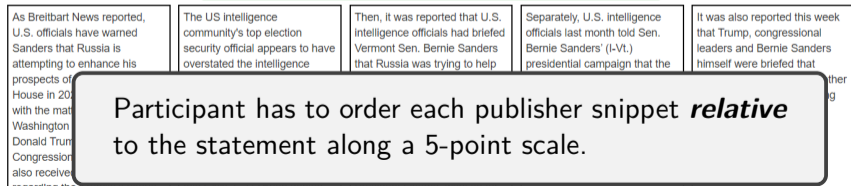
Framing

As a reminder, you can see the event summary below.

U.S. intelligence officials have reportedly briefed lawmakers that Russia is allegedly interfering in the 2020 U.S. presidential election with attempts to help President Trump. However, conflicting statements emerged with Vice President Mike Pence's chief of staff denying such intelligence exists. President Trump has also claimed a potential leak from the briefing. The U.S. intelligence community's election security official may have overstated the assessment's nuance during the briefing, according to some national security officials. Intelligence also suggested Russia might be attempting to aid the campaign of Democratic candidate Bernie Sanders.



Remember: You have to compare snippets from newspapers relative to this statement.



Framing: Title

Now consider the titles of the news articles in the boxes. Compare them to the summary in the middle box just like before.

MORE DEMOCRAT < < < < < < < > > > > > > MORE REPUBLICAN

U.S. intelligence officials have reportedly briefed lawmakers that Russia is allegedly interfering in the 2020 U.S. presidential election with attempts to help President Trump. However, conflicting statements emerged with Vice President Mike Pence's chief of staff denying such intelligence exists. President Trump has also claimed a potential leak from the briefing. The U.S. intelligence community's election security official may have overstated the assessment's nuance during the briefing, according to some national security officials. Intelligence also suggested Russia might be attempting to aid the campaign of Democratic candidate Bernie Sanders.

Remember: You have to compare snippets from newspapers relative to this statement.

Marc Short: 'There's Not Intelligence' Saying Russia Wants Trump Reelected

Trump's Wants Intelligence Leak on Russian Election Interference Investigated

US intelligence briefer appears to have overstated assessment of 2020 Russian interference

No evidence of Russian 'play' to help Trump, briefer may have 'overstated' intelligence, official says

Biden: Trump And His Allies 'Like' Russia Interfering In U.S. Elections

Trump adviser disputes intelligence claims of Russian election meddling

'They like Bernie': Biden says Russia working to prevent him from getting nomination

Complete the drag and drop task

Complete the task on the left panel.

Continue to next task

Framing: Title

Now consider the titles of the news articles in the boxes. Compare them to the summary in the middle box just like before.

MORE DEMOCRAT < < < < < < < > > > > > > MORE REPUBLICAN

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Remember: You have to compare snippets from newspapers relative to this statement.

We repeat this exercise also for the publisher headlines *relative* to the event summary.

Complete the drag and drop task

Complete the task on the left panel.

Continue to next task

Marc Short: 'The Intelligence' Says Trump Relected

'They like Bernie' Russia working to from getting nom

GPT-4-32k: Answers *and* Reasoning \Rightarrow auditing becomes possible

To illustrate how GPT can justify its answer, we first ask it to evaluate how partisans prioritize a 2020 event:

2020 Event: The Department of Homeland Security (DHS) issued a bulletin warning that Russia is trying to undermine the integrity of the US 2020 elections by amplifying false claims about mail-in voting leading to widespread voter fraud. The Trump campaign, meanwhile, is preparing for a potentially protracted legal battle in the event of a contested election. Simultaneously, Attorney General William Barr has been publicly criticizing mail-in voting. Facebook and Twitter have added warnings to President Trump's social media posts, which have suggested individuals should try to vote twice to test the integrity of mail-in voting systems.

GPT-4-32k: Answers *and* Reasoning \Rightarrow auditing becomes possible

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Democrats rating 5: This event contains several elements that would align with the perception and interests of Democrats. First, the fact that a U.S. governmental body (DHS) is pointing out potential foreign interference in the election process strengthens the argument for election security measures, which Democrats generally support. Second, the mention of a planned legal dispute by the Trump campaign may be seen as an attempt to undermine the democratic process, a concern that Democrats have voiced in the past. Lastly, with the criticism towards mail-in voting by high-ranking officials in the current administration, Democrats, who typically support mail-in voting citing it increases voter turnout, would want media attention on this issue as it brings public attention towards election integrity and voter suppression.

GPT-4-32k: Answers *and* Reasoning \Rightarrow auditing becomes possible

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Republicans rating 2: Most Republicans, particularly those within the Trump campaign and administration, might not want media to pay high attention to this event. The allegations of Russia trying to undermine the integrity of the US elections by amplifying false claims about mail-in voting might further cast doubt on President Trump's criticisms of mail-in voting. Furthermore, the attention might raise more questions about the Trump campaign's preparations for a legal battle in the event of a contested election. However, they might appreciate some attention on Attorney General William Barr's criticism of mail-in voting.

GPT-4-32k: *Answers and Reasoning* \Rightarrow auditing becomes possible

We next ask GPT to evaluate to what extent partisans believe a statement - we use the first indirect quote in the list of statements associated with this event:

2020 Event/1st indirect quote: The Department of Homeland Security (DHS) issued a bulletin warning that Russia is trying to undermine the integrity of the US 2020 elections.

GPT-4-32k: Answers *and* Reasoning \Rightarrow auditing becomes possible

2020 Event/1st indirect quote: The Department of Homeland Security (DHS) issued a bulletin warning that Russia is trying to undermine the integrity of the US 2020 elections.

Democrats: 100% Democrats have been vocal about their concerns regarding foreign interference in U.S. elections, particularly from Russia. Given these established attitudes and the fact that the statement is about a bulletin issued by DHS, a federal agency, it is expected that nearly all, if not all, Democrats would regard this statement as true based on the provided evidence.

GPT-4-32k: Answers *and* Reasoning \Rightarrow auditing becomes possible

2020 Event/1st indirect quote: The Department of Homeland Security (DHS) issued a bulletin warning that Russia is trying to undermine the integrity of the US 2020 elections.

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Republicans: 60% It's difficult to determine the exact percentage of Republicans who would regard the statement as true due to variation in individuals' perception, media consumption, and political beliefs. However, it might be plausible to suggest a majority, given that the information comes from the Department of Homeland Security, a trusted national security agency. This would suggest a value greater than 50%, hence the estimate of 60%. Some Republicans might not believe it due to partisan skepticism, hence why it is not a much higher percentage.

Human/ChatGPT Agreement Rates

We hired two raters to complete the experiment:

- 6 events
- 103 statements
- 146 snippets

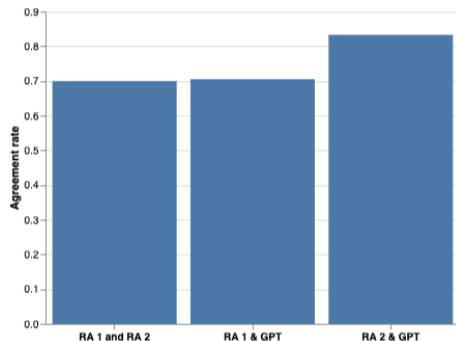
Human/ChatGPT Agreement Rates

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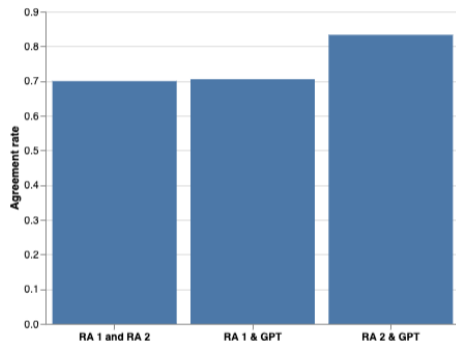
We also ran every evaluation question through GPT-4-32k including the human-evaluated tasks.

Human/ChatGPT Agreement Rates



- two raters agree 70% of the time
- rater 1 agrees 70% the time with GPT-4-32k
- rater 2 agrees 83% the time with GPT-4-32k

Human/ChatGPT Agreement Rates

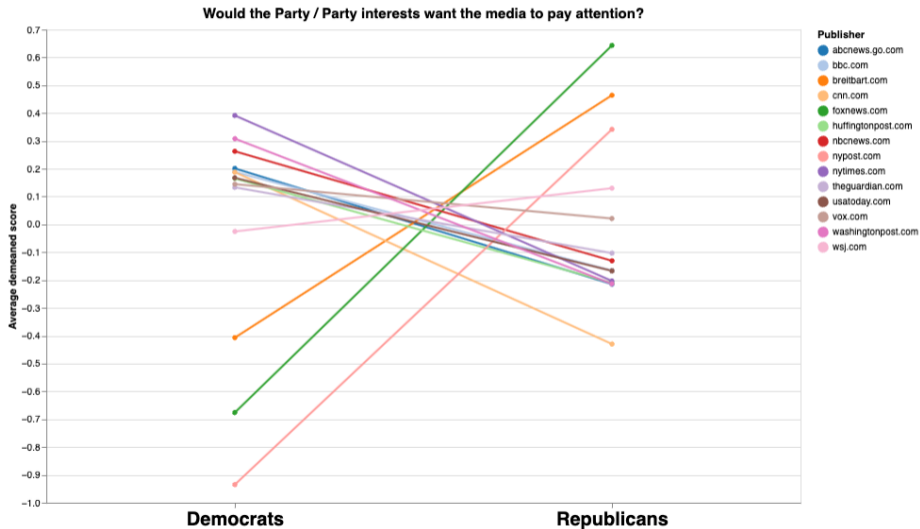


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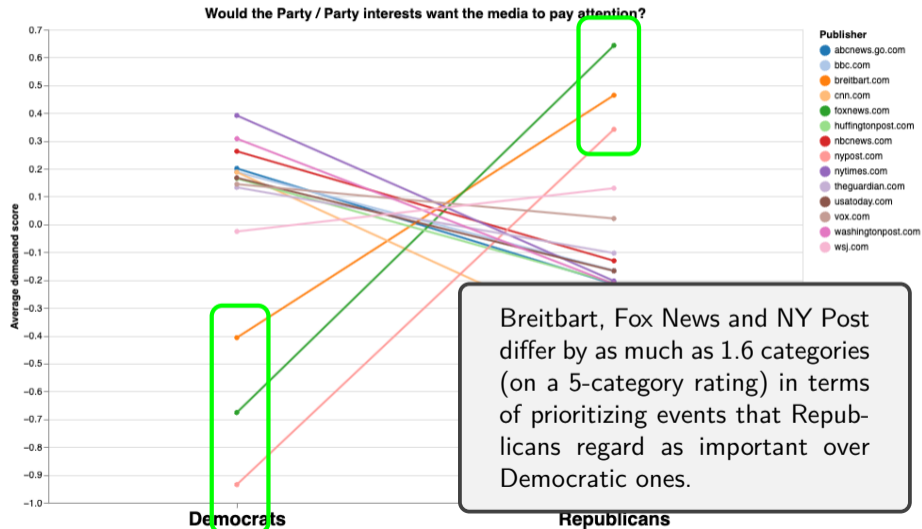
No evidence that GPT performs worse than a human. Approximate **accuracy rate** for GPT-4-32k is between $\sqrt{0.70} = 0.83$ and $\sqrt{0.83} = 0.90$.

Empirical Results

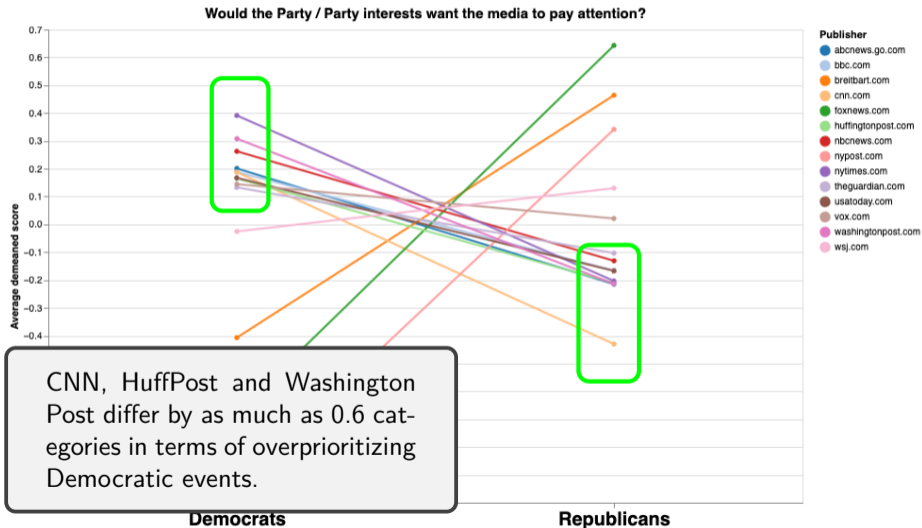
Event Selection



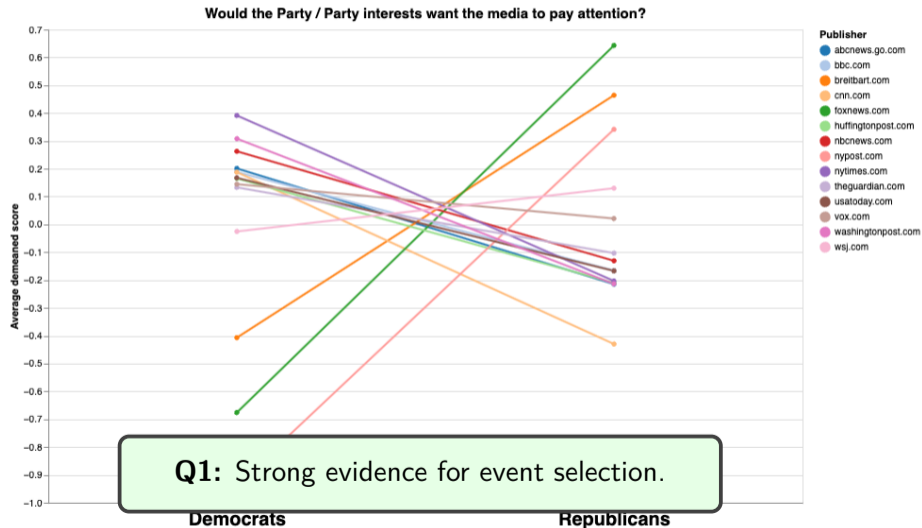
Event Selection



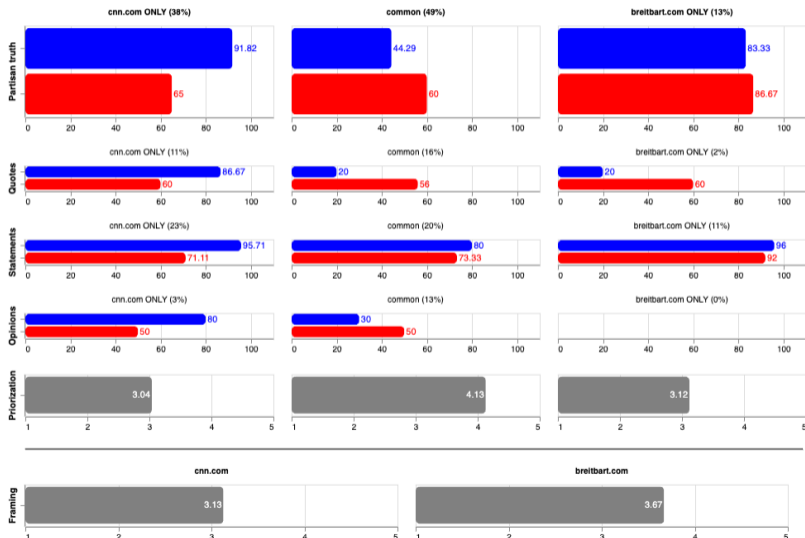
Event Selection



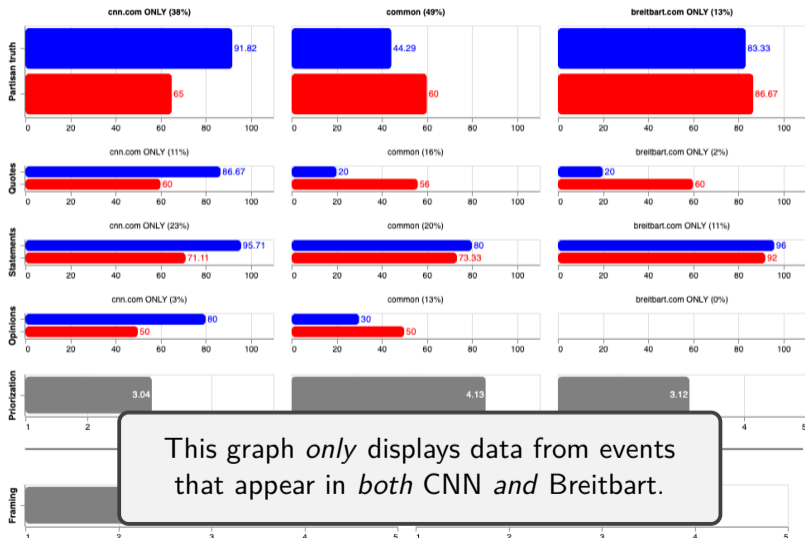
Event Selection



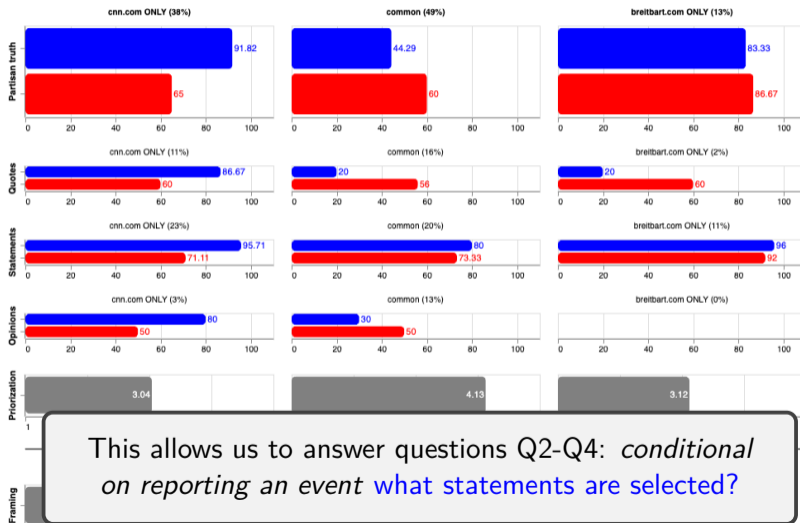
Statement Selection + Framing: CNN vs. Breitbart



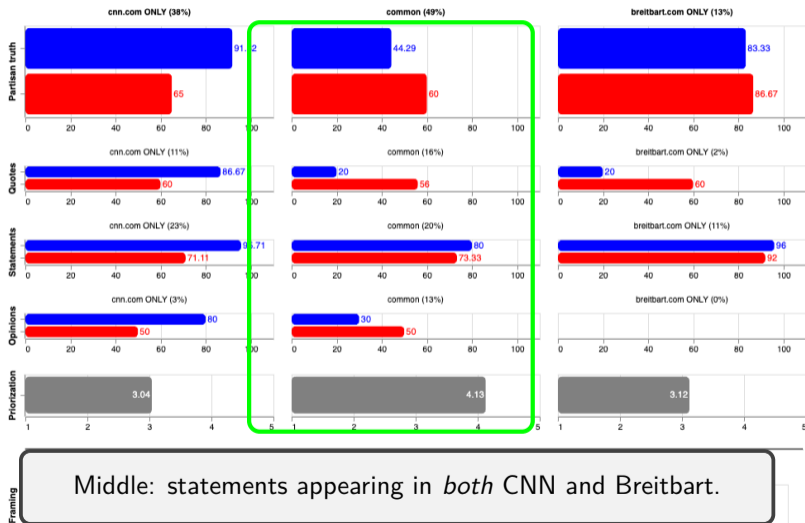
Statement Selection + Framing: CNN vs. Breitbart



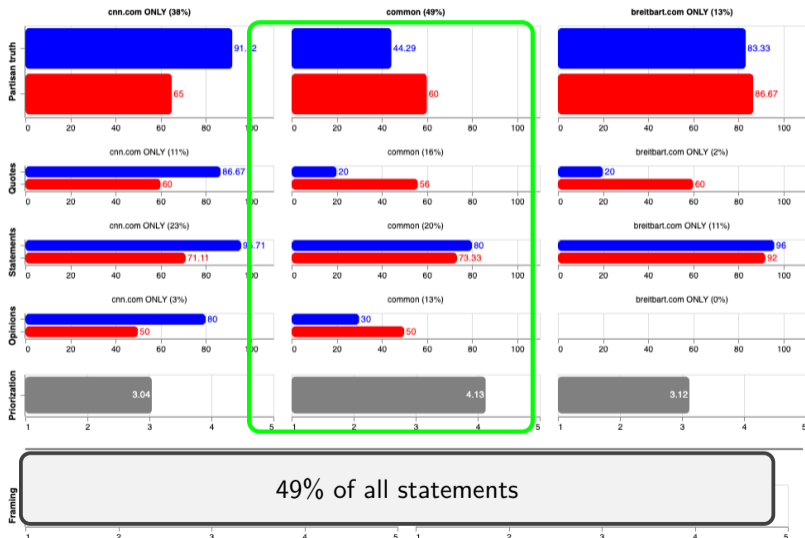
Statement Selection + Framing: CNN vs. Breitbart



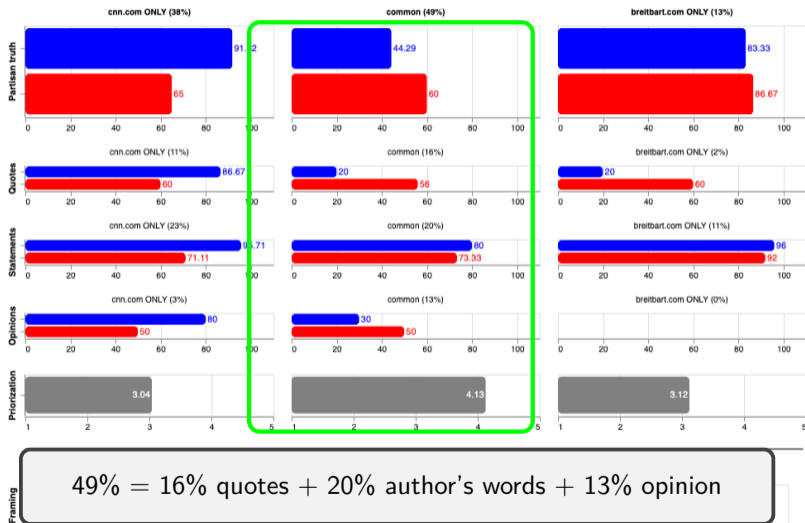
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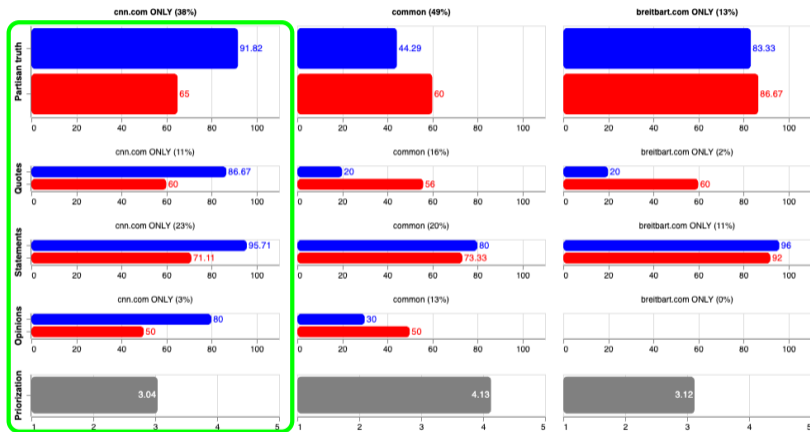
Statement Selection + Framing: CNN vs. Breitbart



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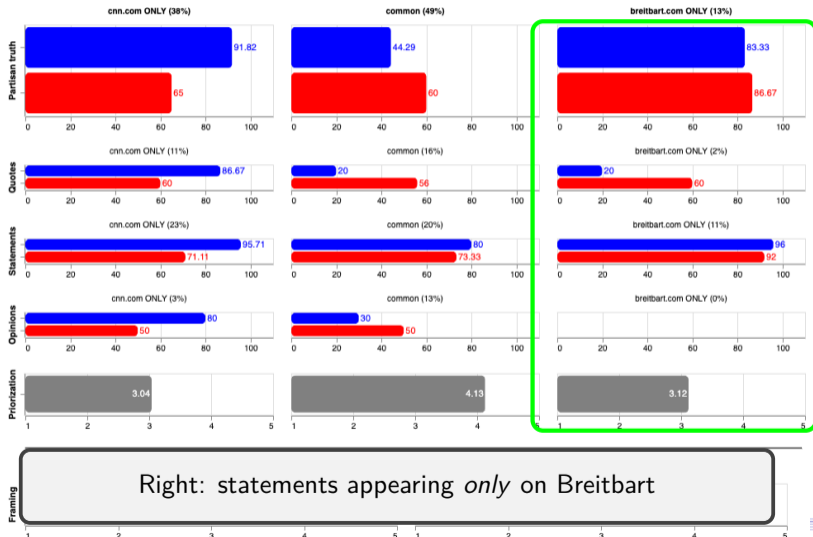
Statement Selection + Framing: CNN vs. Breitbart



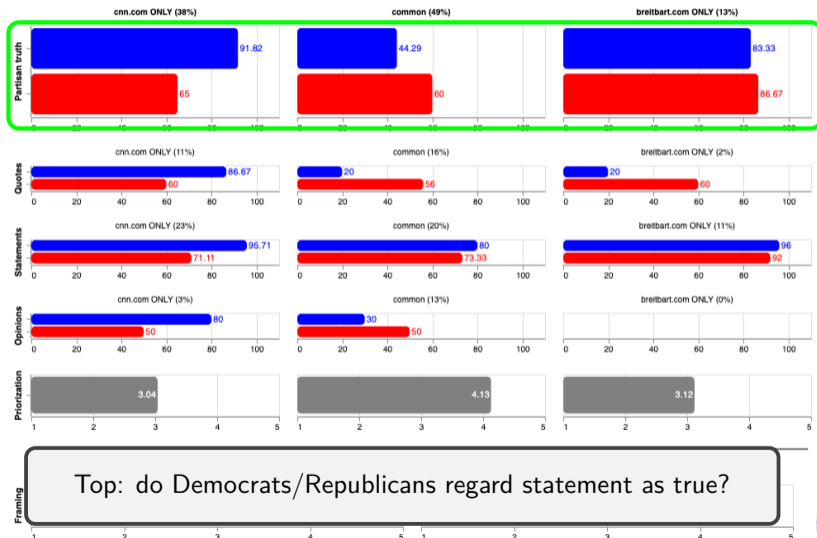
Framing

Left: statements appearing *only* on CNN

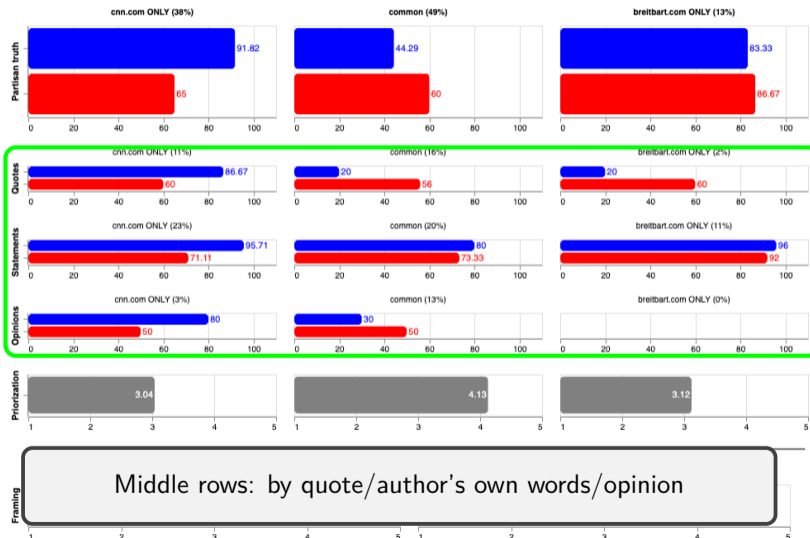
Statement Selection + Framing: CNN vs. Breitbart



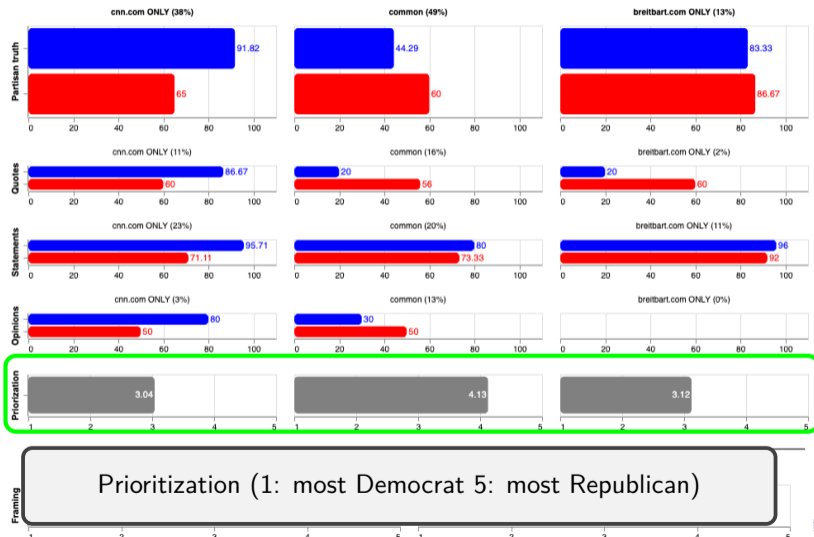
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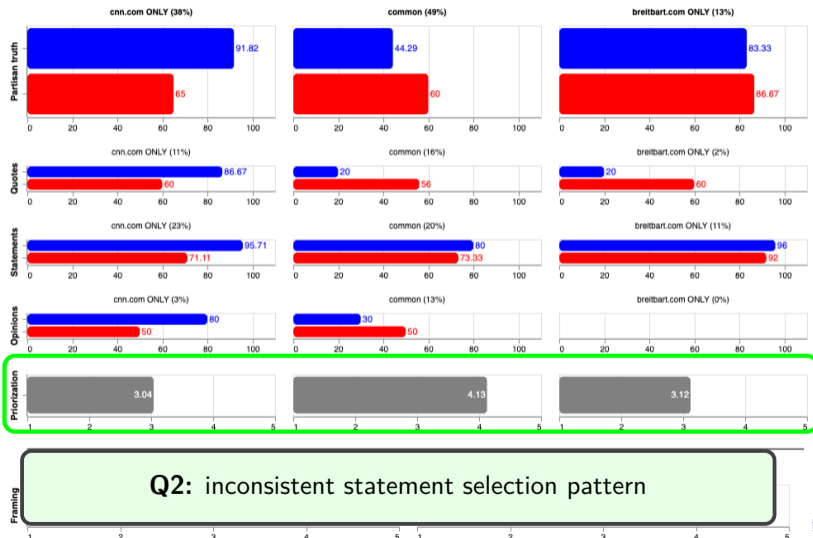
Statement Selection + Framing: CNN vs. Breitbart



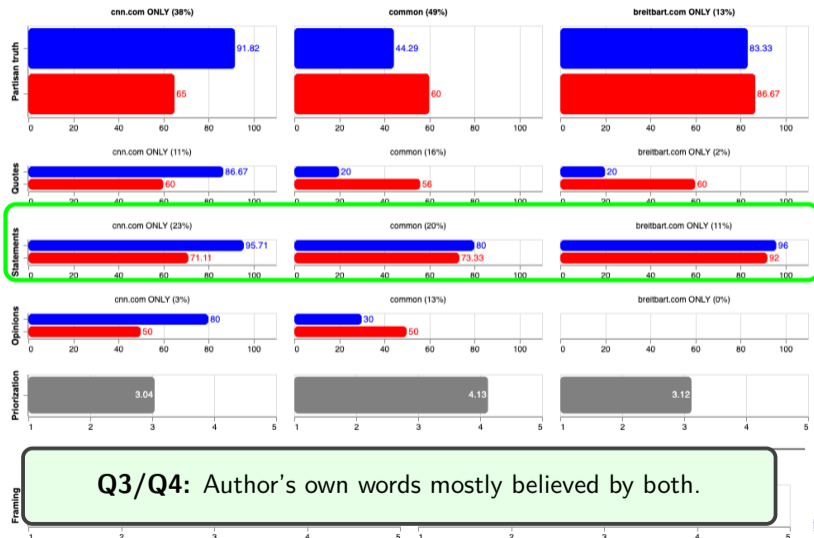
Statement Selection + Framing: CNN vs. Breitbart



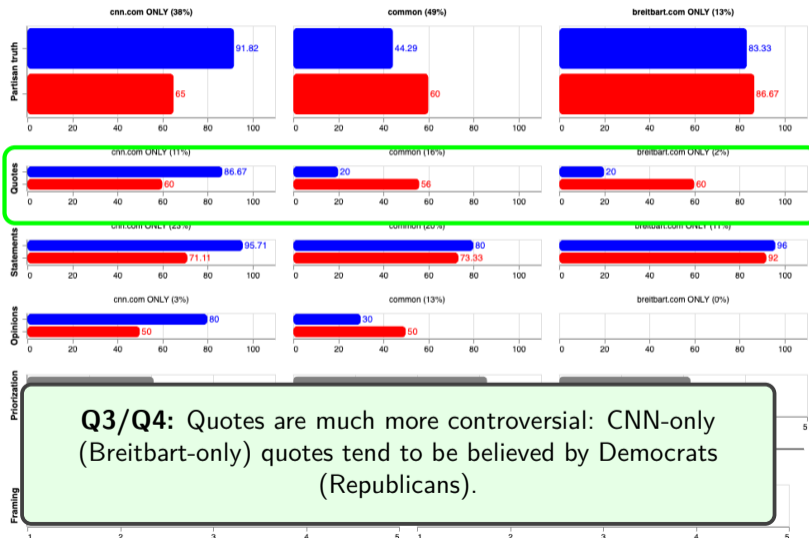
Statement Selection + Framing: CNN vs. Breitbart



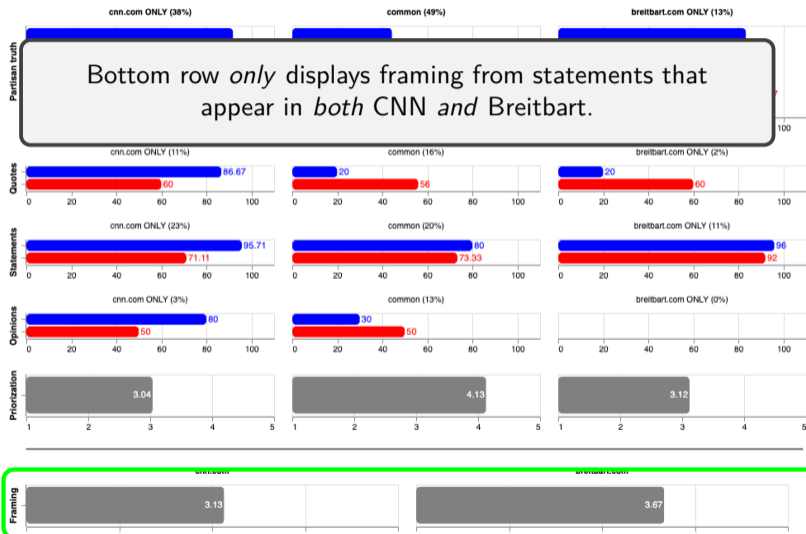
Statement Selection + Framing: CNN vs. Breitbart



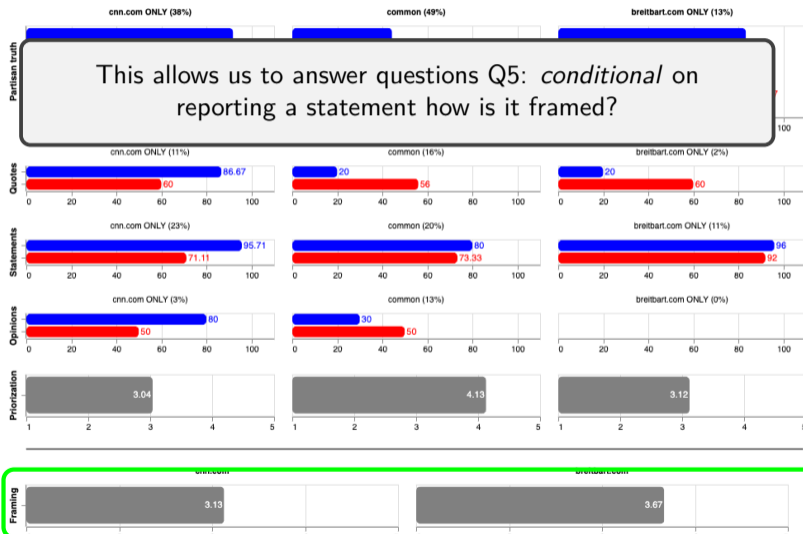
Statement Selection + Framing: CNN vs. Breitbart



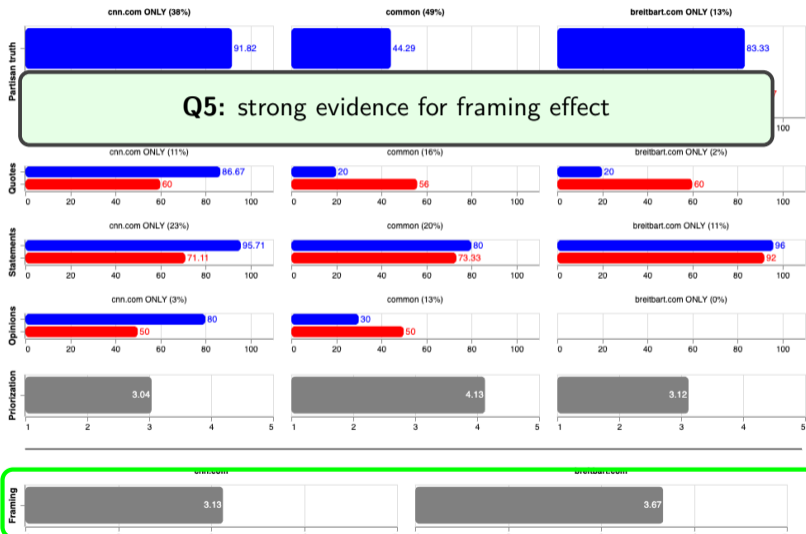
Statement Selection + Framing: CNN vs. Breitbart



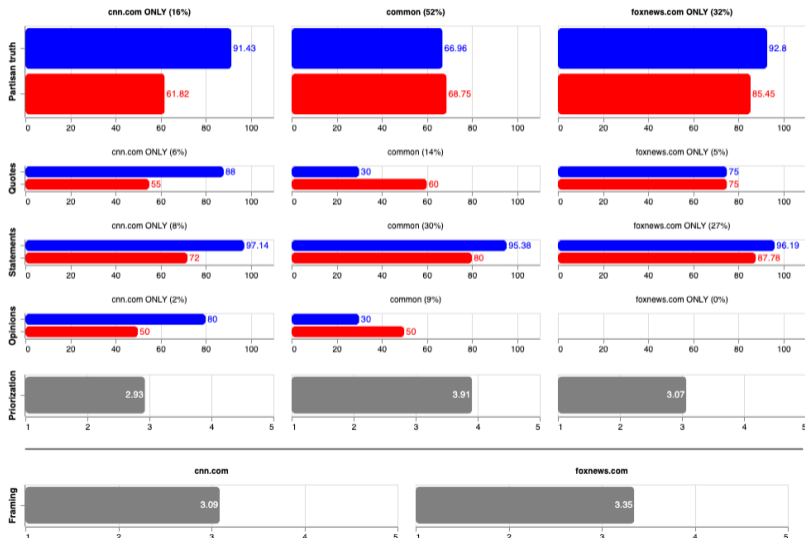
Statement Selection + Framing: CNN vs. Breitbart



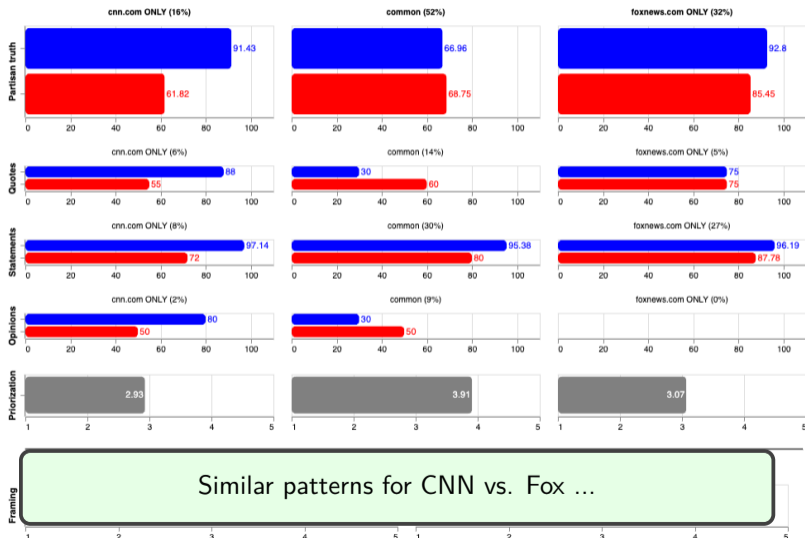
Statement Selection + Framing: CNN vs. Breitbart



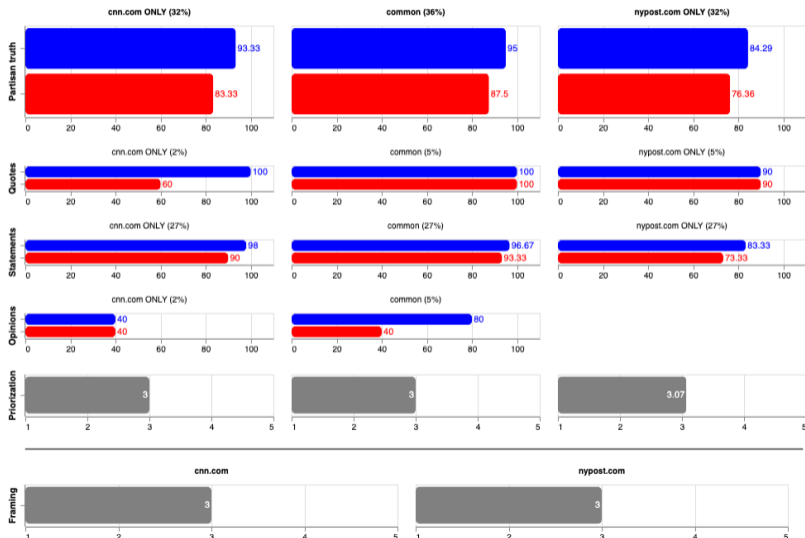
Statement Selection + Framing: CNN vs. Fox



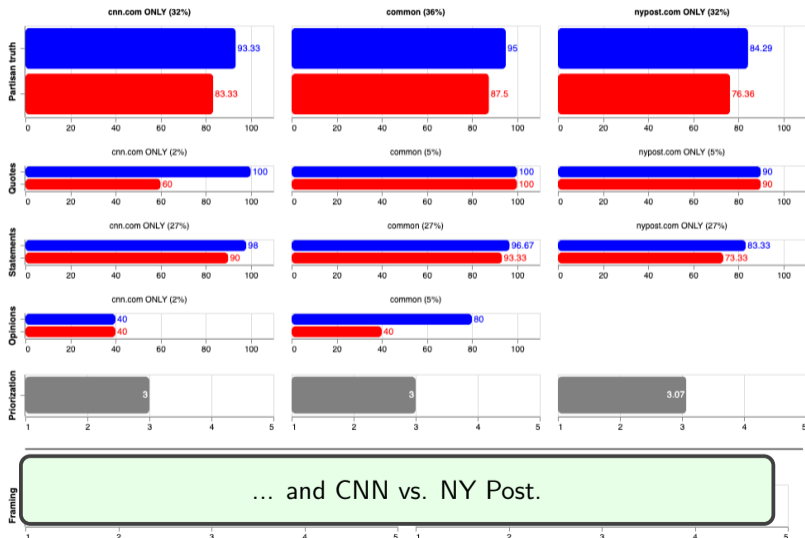
Statement Selection + Framing: CNN vs. Fox



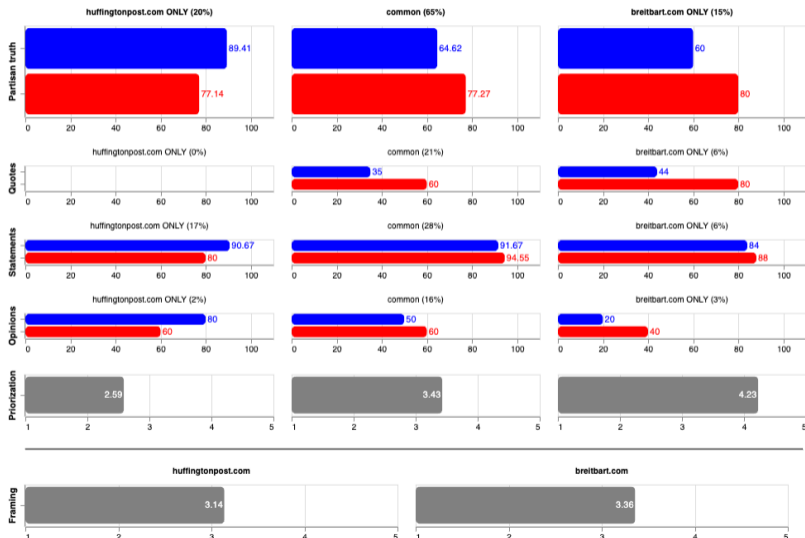
Statement Selection + Framing: CNN vs. New York Post



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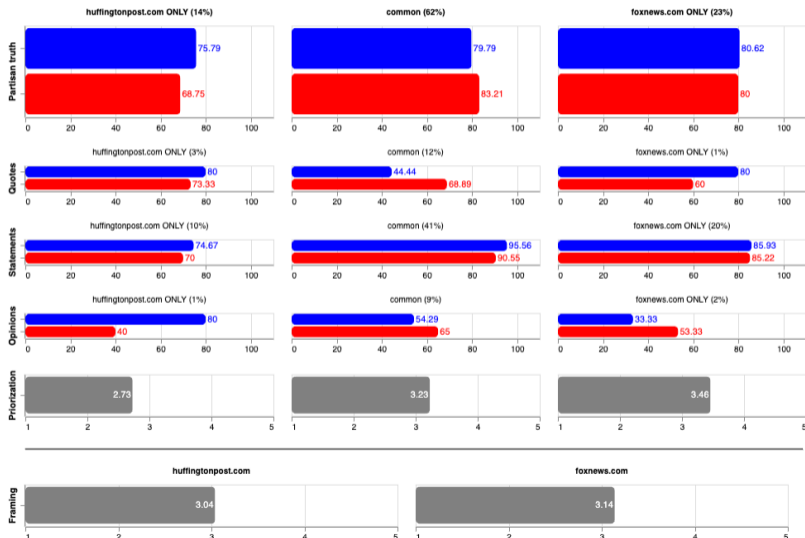
Statement Selection + Framing: HuffPost vs. Breitbart



Statement Selection + Framing: HuffPost vs. Breitbart



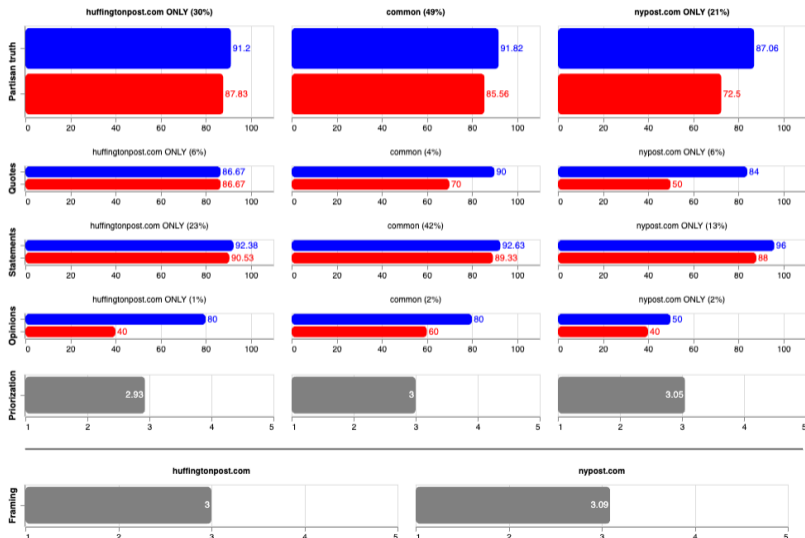
Statement Selection + Framing: HuffPost vs. Fox



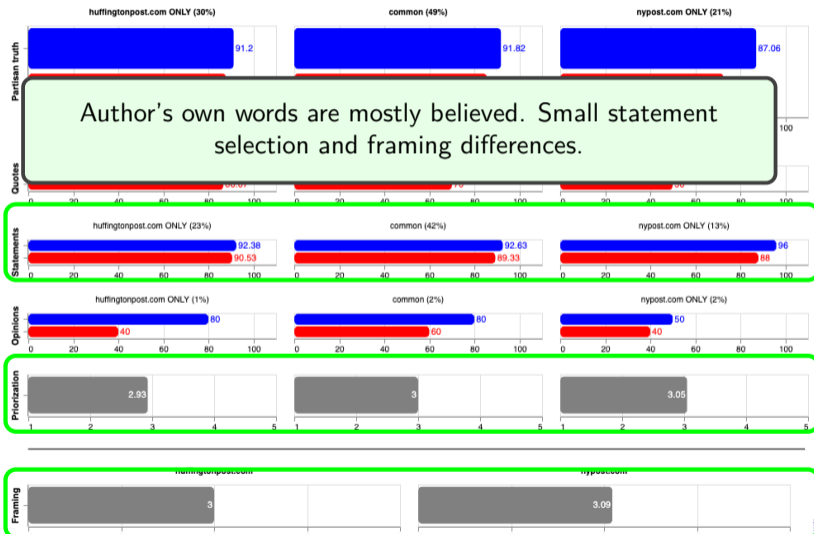
Statement Selection + Framing: HuffPost vs. Fox



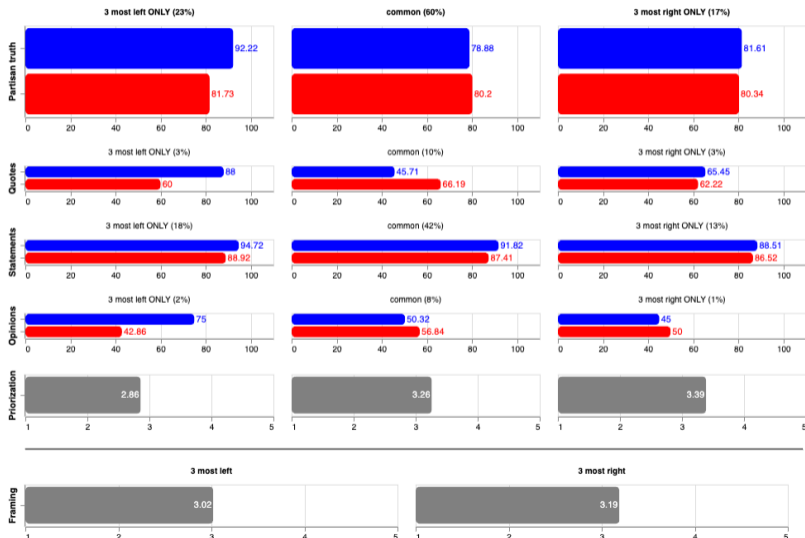
Statement Selection + Framing: HuffPost vs. NY Post



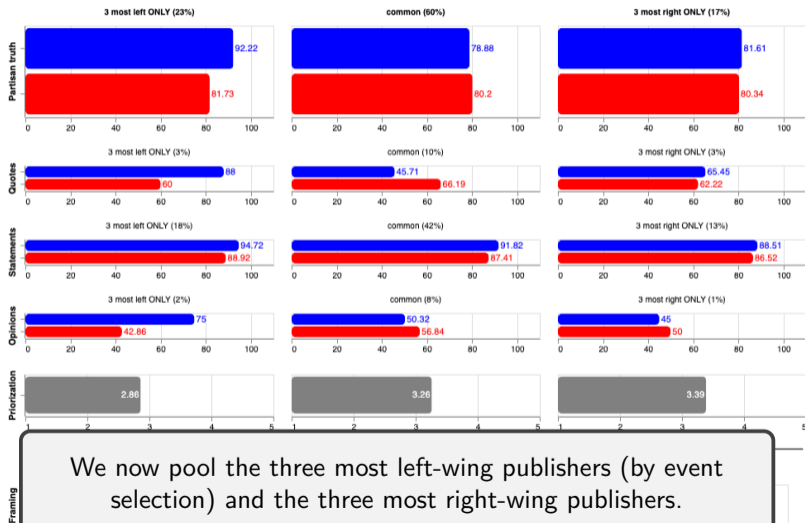
Statement Selection + Framing: HuffPost vs. NY Post



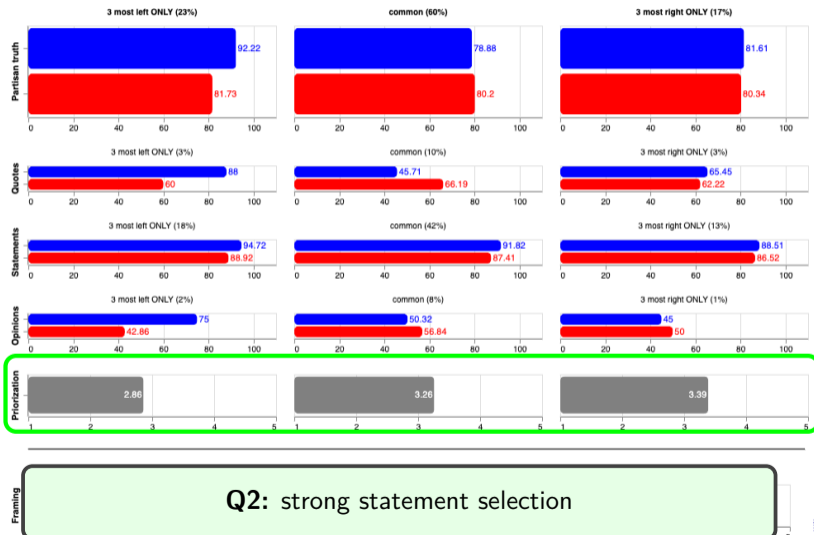
CNN, HuffPost, WP vs. Breitbart, Fox, NY Post



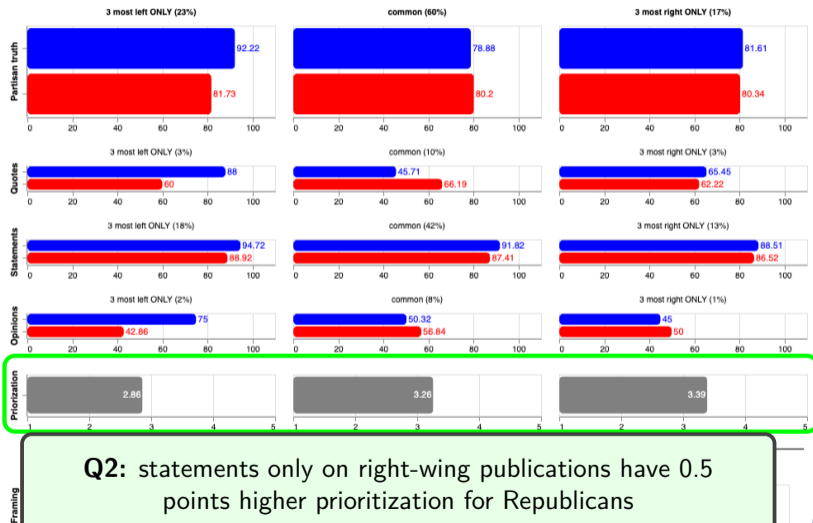
CNN, HuffPost, WP vs. Breitbart, Fox, NY Post



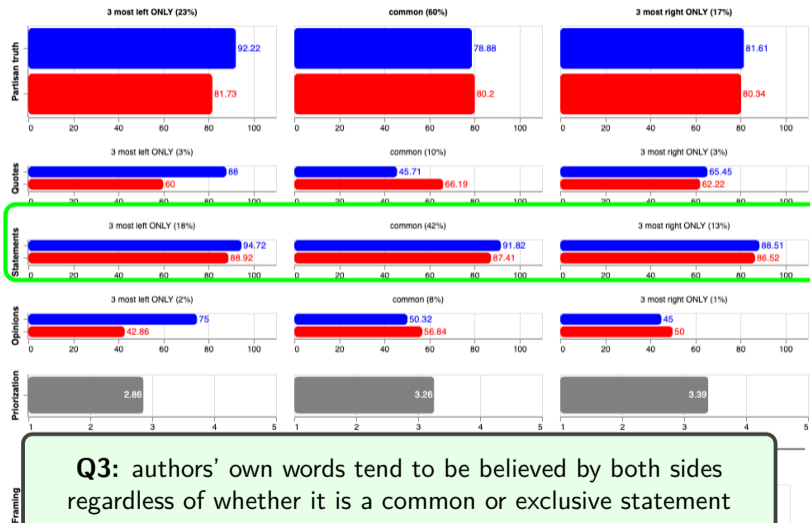
CNN, HuffPost, WP vs. Breitbart, Fox, NY Post



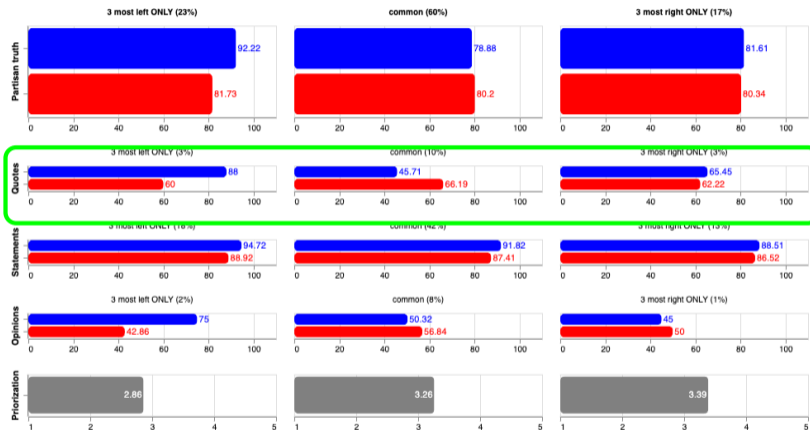
CNN, HuffPost, WP vs. Breitbart, Fox, NY Post



CNN, HuffPost, WP vs. Breitbart, Fox, NY Post

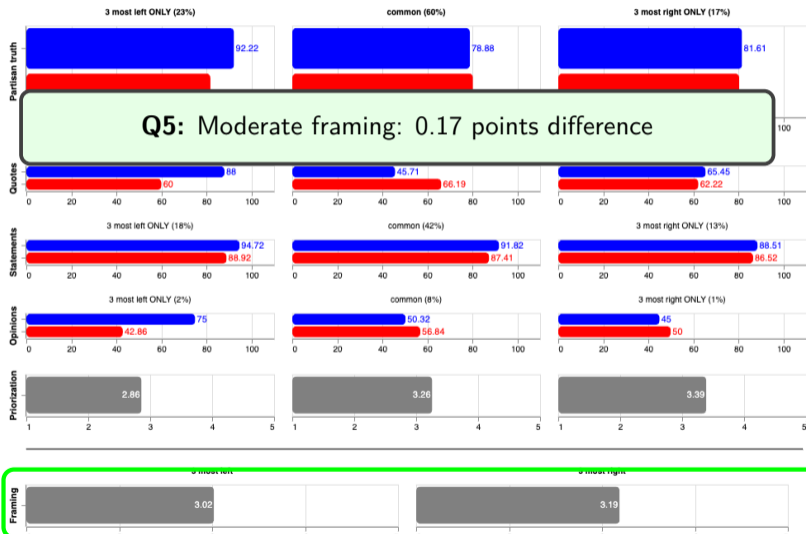


CNN, HuffPost, WP vs. Breitbart, Fox, NY Post



Q4: Partisans have different views on quotes depending on who includes them.

CNN, HuffPost, WP vs. Breitbart, Fox, NY Post



Summary of Findings

- ① Strong evidence for bias through selection:
 - event selection
 - statement selection
- ② Moderate framing effect
- ③ Little evidence for fake news
 - Democrats and Republicans high confidence (>80%) in authors' own words regardless of selection.
- ④ Quotes are more controversial.

Conclusion

Many things still to do:

- Separate out AP/Reuters text from newspaper's own writing
- Analyze framing in headlines
- Analyze ordering of statements within text

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- Separate out AP/Reuters text from newspaper's own writing
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Our research suggests that LLMs can be helpful rather than threatening:

- LLMs can identify facts that the user has not seen yet
- more efficient interventions to correct beliefs become possible