



# ***Israel & Palestine***

*Exploring Differences in News Coverage  
of the 2023 Israel-Hamas War*

***Max Eckert  
Kai Foerster  
Steven Kerr  
Danial Riaz***

## Outline

1. *Background & Research Question*
2. *Data Collection*
3. *Descriptive Analysis*
4. *Dimensionality Reduction*
5. *Topic Modelling*
6. *Sentiment Analysis*
7. *Discussion & Limitations*
8. *Future Work*



Source: Getty Images via Middle East Eye

# *Background & Research Question*

# Background

## The battle for public opinion over Israel war

Political Psychology, Vol. 8, No. 2, 1987

Smerconish



FINANCIAL REVIEW

Newsfeed | 

### Israel is winning the war against Hamas but losing public opinion

Public opinion has turned against Israel as the number of civilian Palestinian casualties mount from retaliatory airstrikes.

#### Biased Judgments of Media Bias: A Case Study of the Arab-Israeli Dispute

Neil J. Kressel<sup>1</sup>

*Since the birth of the Jewish state in 1948, hundreds of commentaries on media coverage of the Arab-Israeli conflict have been driven by a desire to demonstrate unfair media bias—either against Israel or against the Arab states. This paper presents a brief overview of these articles; it differs from*

## What the Polls Say About Gaza

Four main findings from recent polls about the war.

THE WIRE English हिंदी اردو

ABOUT US

SUPPORT US

LOGIN

POLITICS ECONOMY WORLD SECURITY LAW SCIENCE SOCIETY CULTURE



OPINION MEDIA

### 'Dead' Versus 'Killed': A Closer Look at the Media Bias in Reporting Israel-Palestine Conflict

Depending upon the side they favour, media outlets have been tactfully employing language, which is resulting in hate speech and warmongering.

**Research Question: How does coverage of the Israel-Palestine conflict vary by news source and evolve over time?**

## Data Collection

- *Data source: LexisNexis*
- *Search terms: israel\* AND palestin\**
- *News sources: Al Jazeera (Qatar), Die Welt (Germany), The Guardian (UK), The New York Times (USA), South China Morning Post (HK), The Straits Times (Singapore) & The Times of India (India)*
- *Dates: 1 Sep 2023–30 Nov 2023*
- *Corpus with over 4,000 English-language articles*



**South China  
Morning Post**



**DIE**  **WELT**

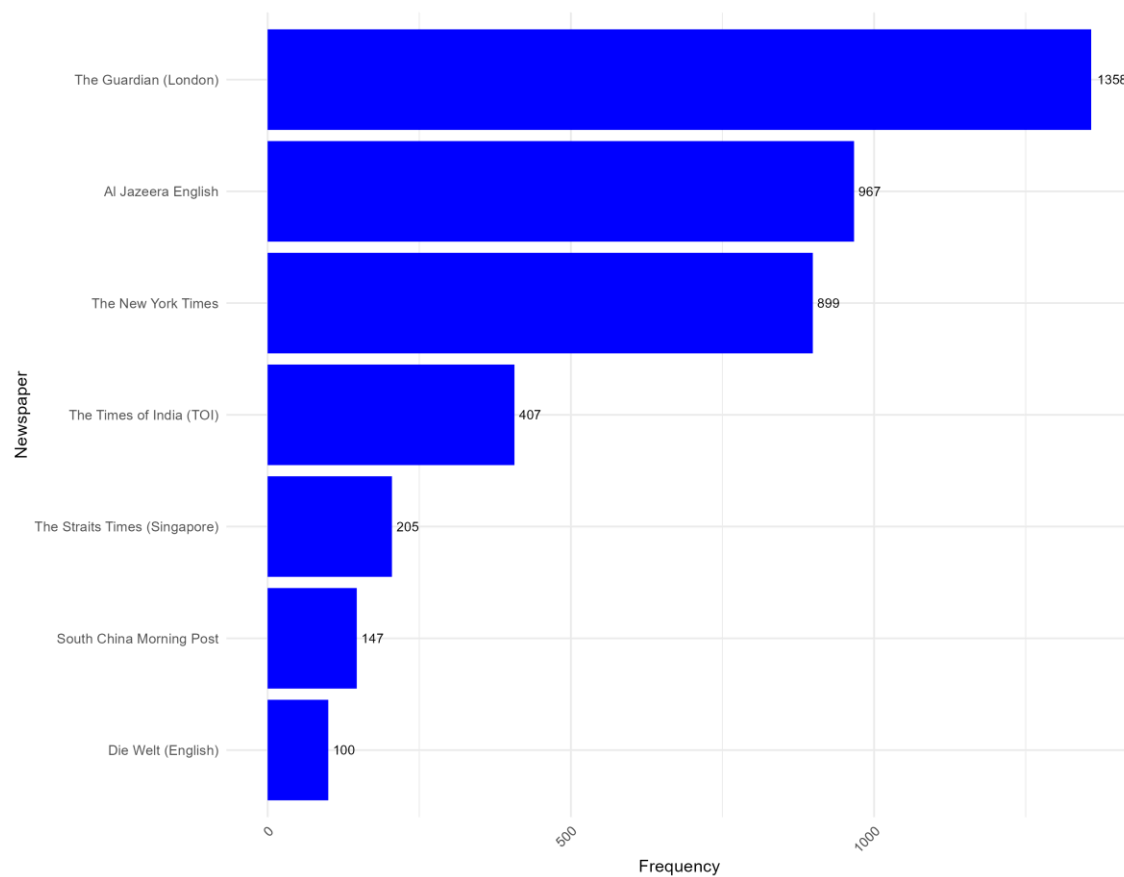


**The New York Times**

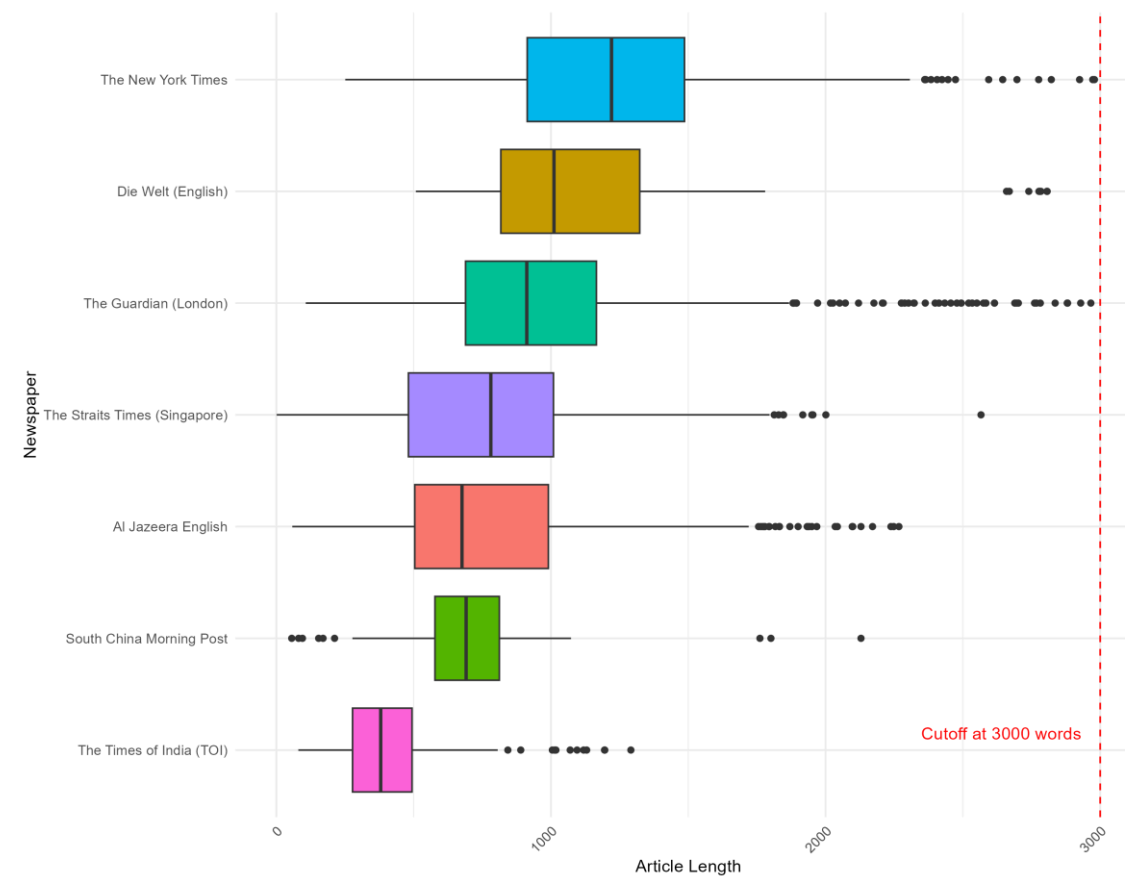
# *Descriptive Analysis*

# Number of articles and article length by newspaper

**Frequency of Newspaper Articles by Newspaper**

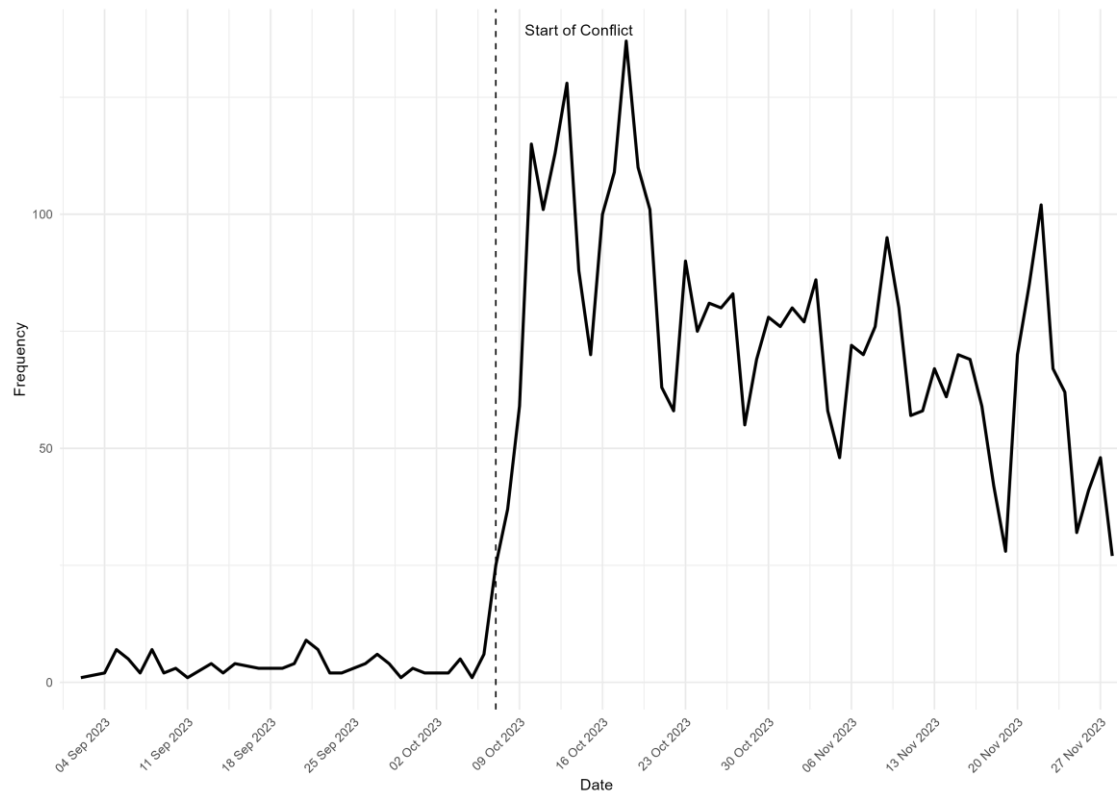


**Distribution of Article Length by Newspaper**



# Number of articles over time

**Frequency of Newspaper Articles over time**

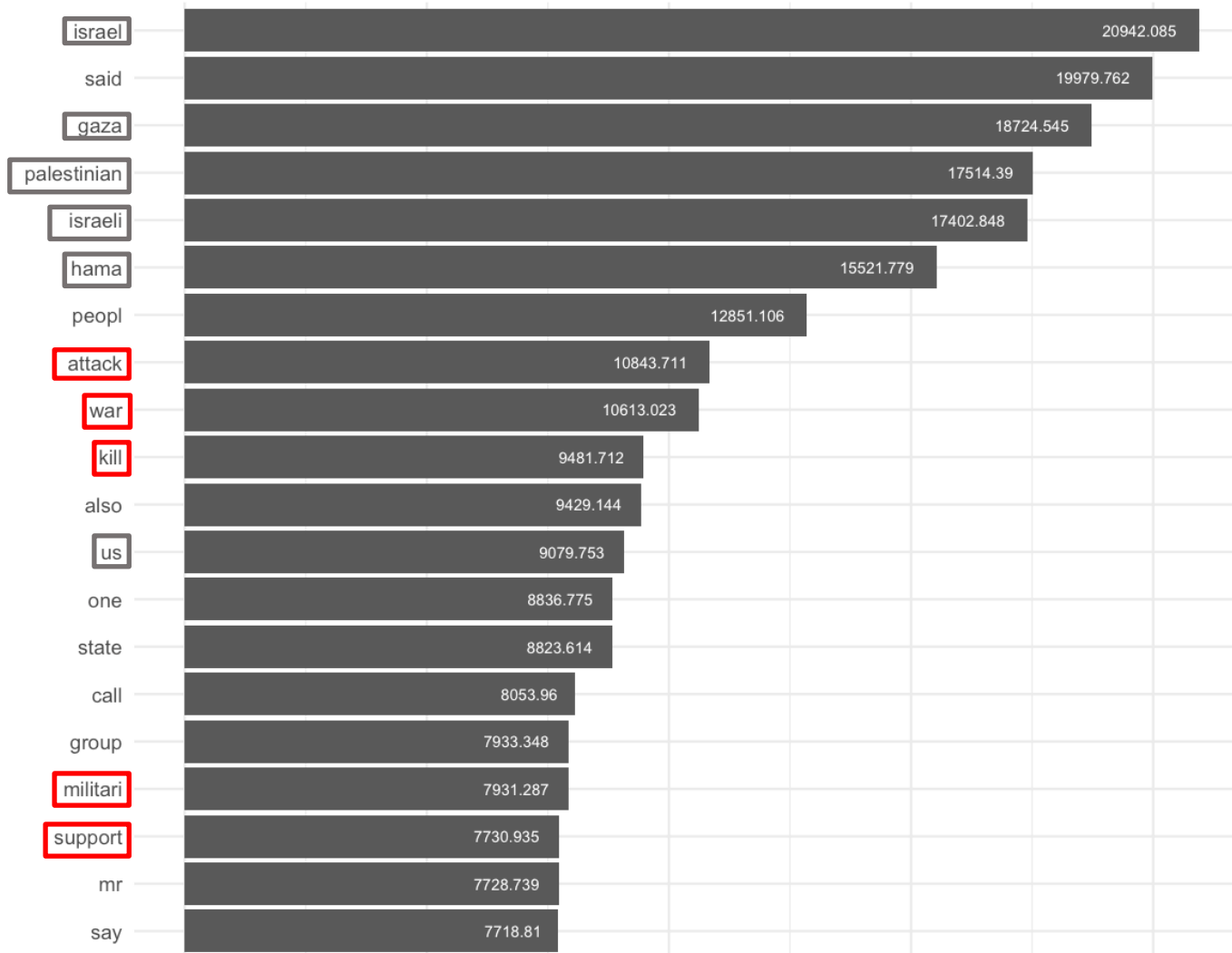


**Frequency of Articles before/after onset of conflict**

Articles by Publication Date		
News Source	Pre-October 7th	Post-October 7th
The Straits Times (Singapore)	22% (45)	78% (160)
Al Jazeera English	10% (97)	90% (870)
Die Welt (English)	6% (6)	94% (94)
The Times of India (TOI)	4% (16)	96% (391)
The New York Times	3% (26)	97% (872)
South China Morning Post	3% (4)	97% (143)
The Guardian (London)	0% (0)	100% (1,358)
<b>Total</b>	<b>5% (194)</b>	<b>95% (3,888)</b>

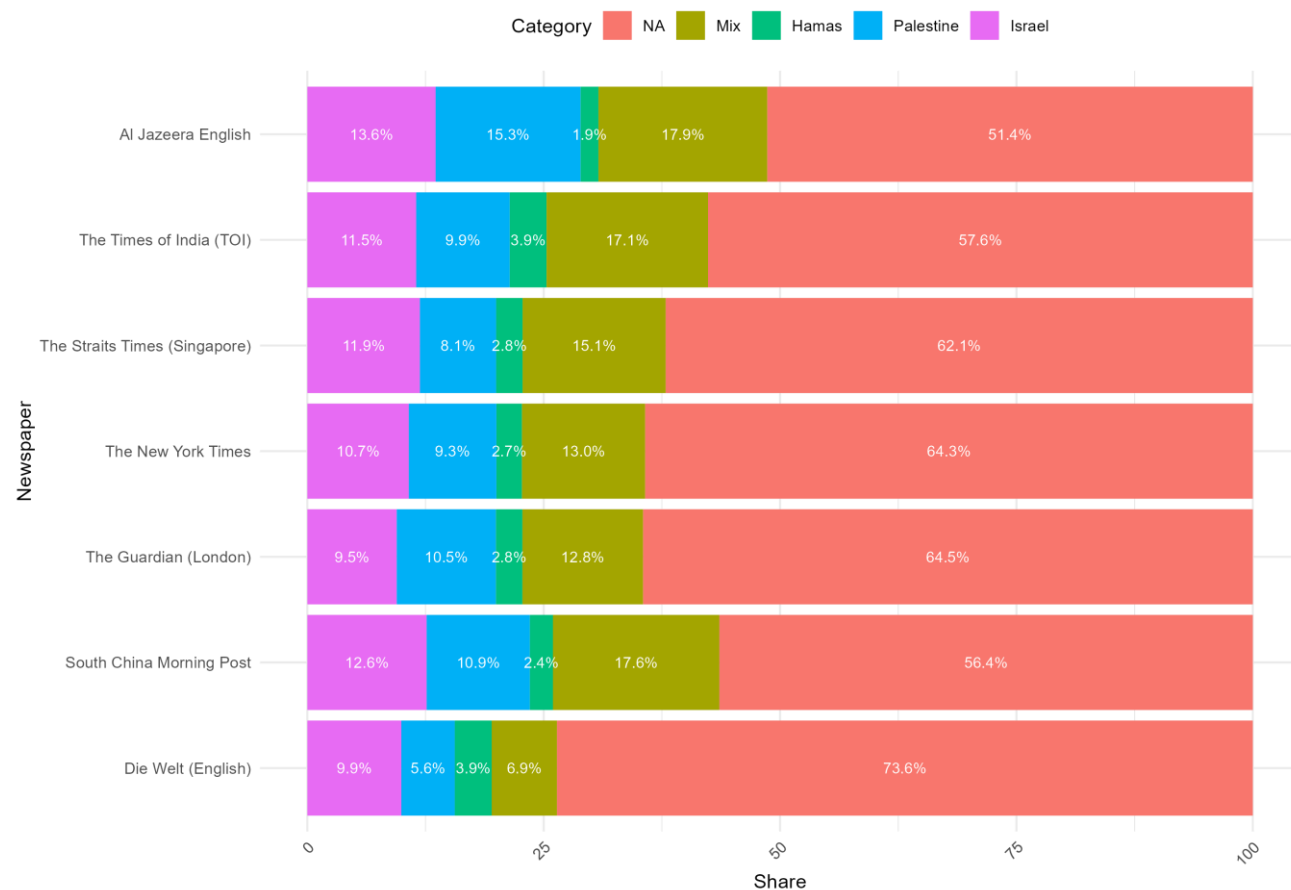


## ***TFIDF: Most frequent words (over entire corpus)***



## *Splitting sentence into the groups “**Ham**as”, “**Is**rael”, “**Pa**lestine”*

### *Share of Groups by Newspaper*



### *Code book for group creation*

Keyword	Israel	Palestine	Ham	Mix
“Israel”	✓	✗	✗	✓
“Palestin”	✗	✓	✗	✓
“Ham	✗	✗	✓	✓
“Gaza”	✗	✓	✗	✓

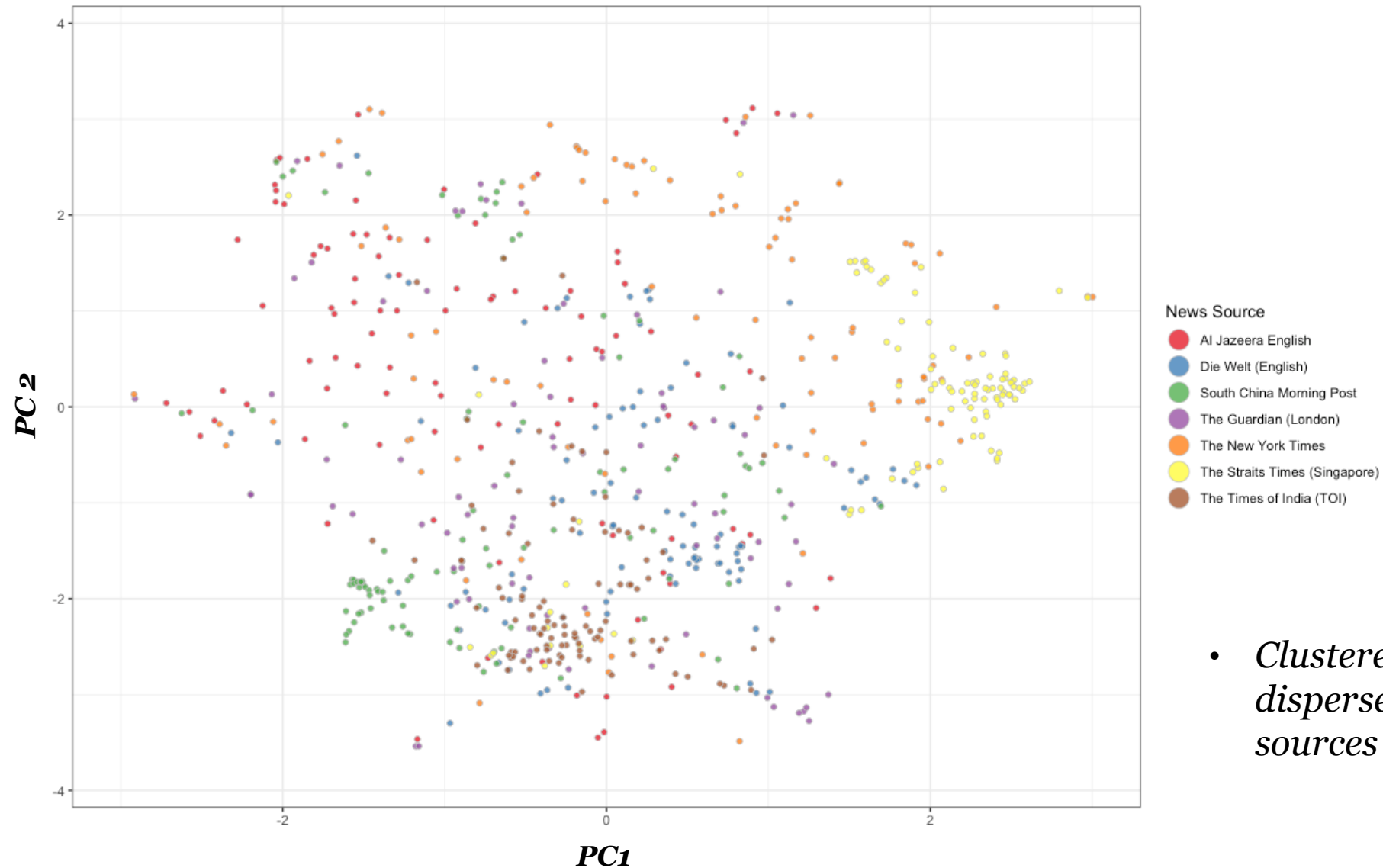
## Relative Term Frequency by group

- *Hamas and Israel co-occur with words like „terrorist“, and „attack“ and „military“ respectively*
- *Palestine associates co-occur with words like „hospital“ and „humanitarian“*



# *Dimensionality Reduction*

# Dimensionality Reduction with UMAP



- *Clustered versus dispersed news sources (on article level)*

# *Topic Modelling*

# Topic Modelling

## 1. Highest Prob (Probability):

words that have the highest likelihood of being associated with a Topic

## 2. FREX (Frequency Expected):

emphasizes the combination of high frequency and unexpectedness to pinpoint distinctive words within a topic

## 3. Lift:

Measures the strength of association between a word and a topic

## 4. Score:

combination of both frequency and lift.

## Hyper-parameters:

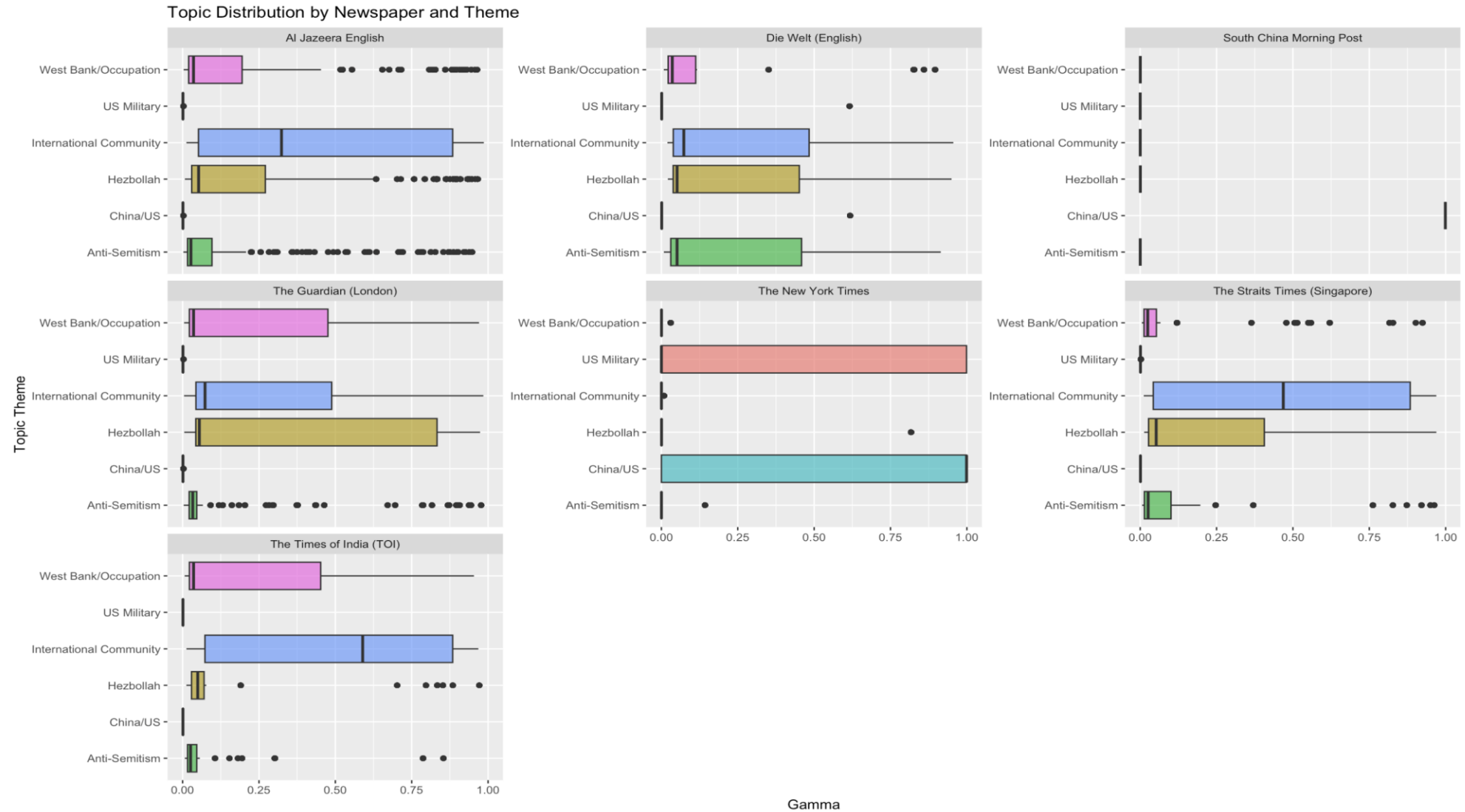
1. K- classification = 6
2. n minimum word frequency = 2

## Topics Classified:

1. US Military
2. Hezbollah
3. Anti-Semitism
4. China/US
5. International Community
6. West Bank/Occupation

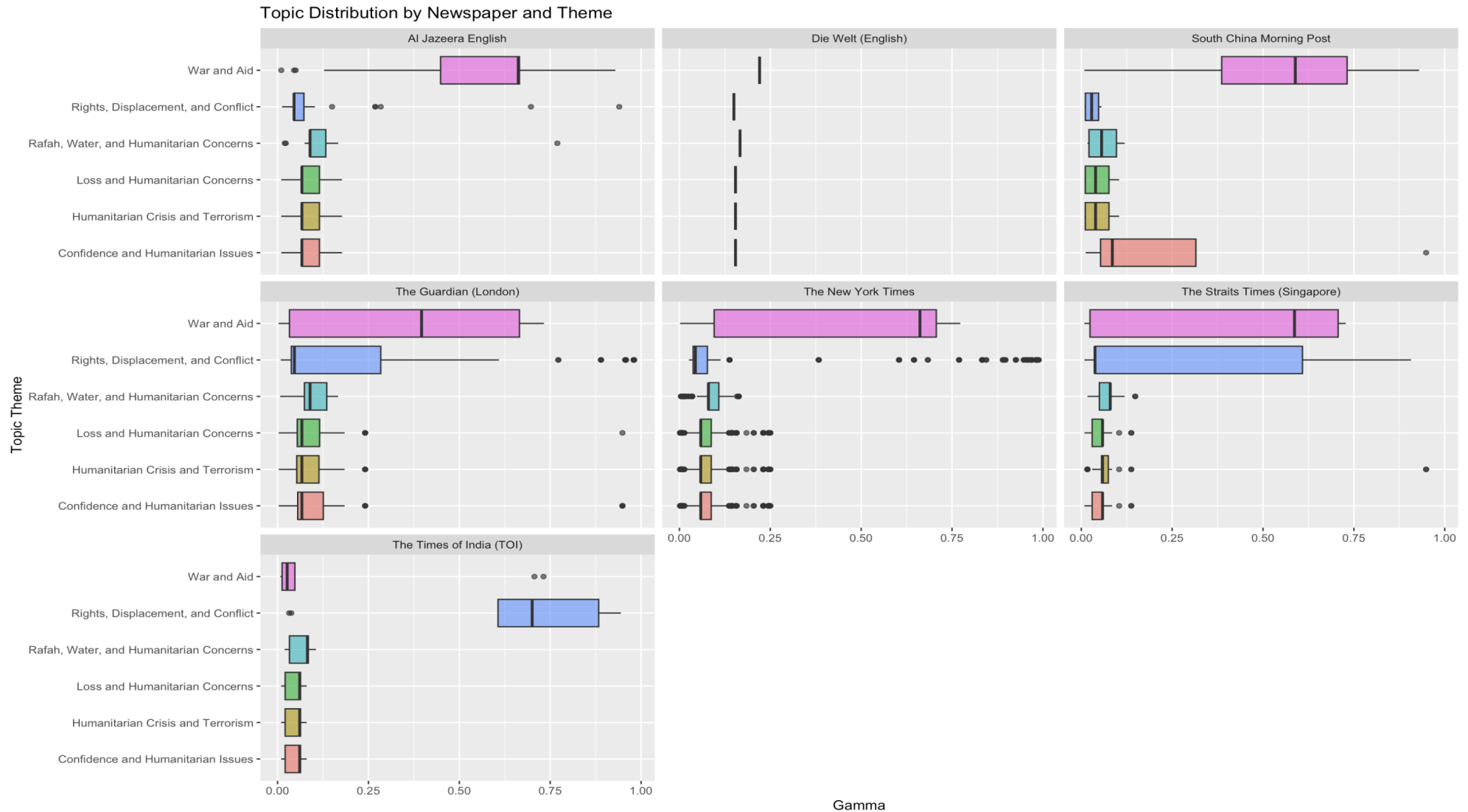
- **Topic 1:**  
Highest Prob: military, war, united, people, officials, support, jewish  
FREX: york, netanyahu's, progressive, country's, coalition, wrote, residents  
Lift: afd, aaron, acceptance, accuracy, achievable, administration's, airports  
Score: york, invasion, officials, american, past, united, official
- **Topic 2:**  
Highest Prob: military, war, hezbollah, minister, lebanon, government, iran  
FREX: hezbollah, lebanon, cabinet, deal, war, lebanese, ceasefire  
Lift: gantz, harb, played, australians, blanford, slim, historical  
Score: hezbollah, war, military, lebanon, hostages, australians, iran
- **Topic 3:**  
Highest Prob: jewish, forces, attack, anti, killed, jerusalem, captives  
FREX: captives, jerusalem, forces, jewish, vwp, anti, idf  
Lift: hatred, imran, armenian, patriarchate, semitism, aly, spitting  
Score: captives, jewish, aly, vwp, forces, jerusalem, anti
- **Topic 4:**  
Highest Prob: military, war, united, people, officials, support, biden  
FREX: it's, country's, yesterday, netanyahu's, don't, china's, hong  
Lift: accountable, achieved, acts, amman, angry, argument, beijing's  
Score: it's, official, officials, united, invasion, american, past
- **Topic 5:**  
Highest Prob: al, hospital, arab, saudi, international, countries, india  
FREX: ship, houthis, syrian, australian, modi, greece, cargo  
Lift: syrian, allgemeine, dische, fc, bakery, kastoni, mustafa  
Score: india, normalisation, ship, houthis, al, romann, greece
- **Topic 6:**  
Highest Prob: biden, people, support, president, bank, west, attacks  
FREX: biden, president, police, support, settlers, occupied, mcdonald's  
Lift: sq, fools, god, hagee, hummel, zanuta, parsi  
Score: biden, support, louk's, biden's, god, lew, president

# Topic Modelling – ‘Israel’

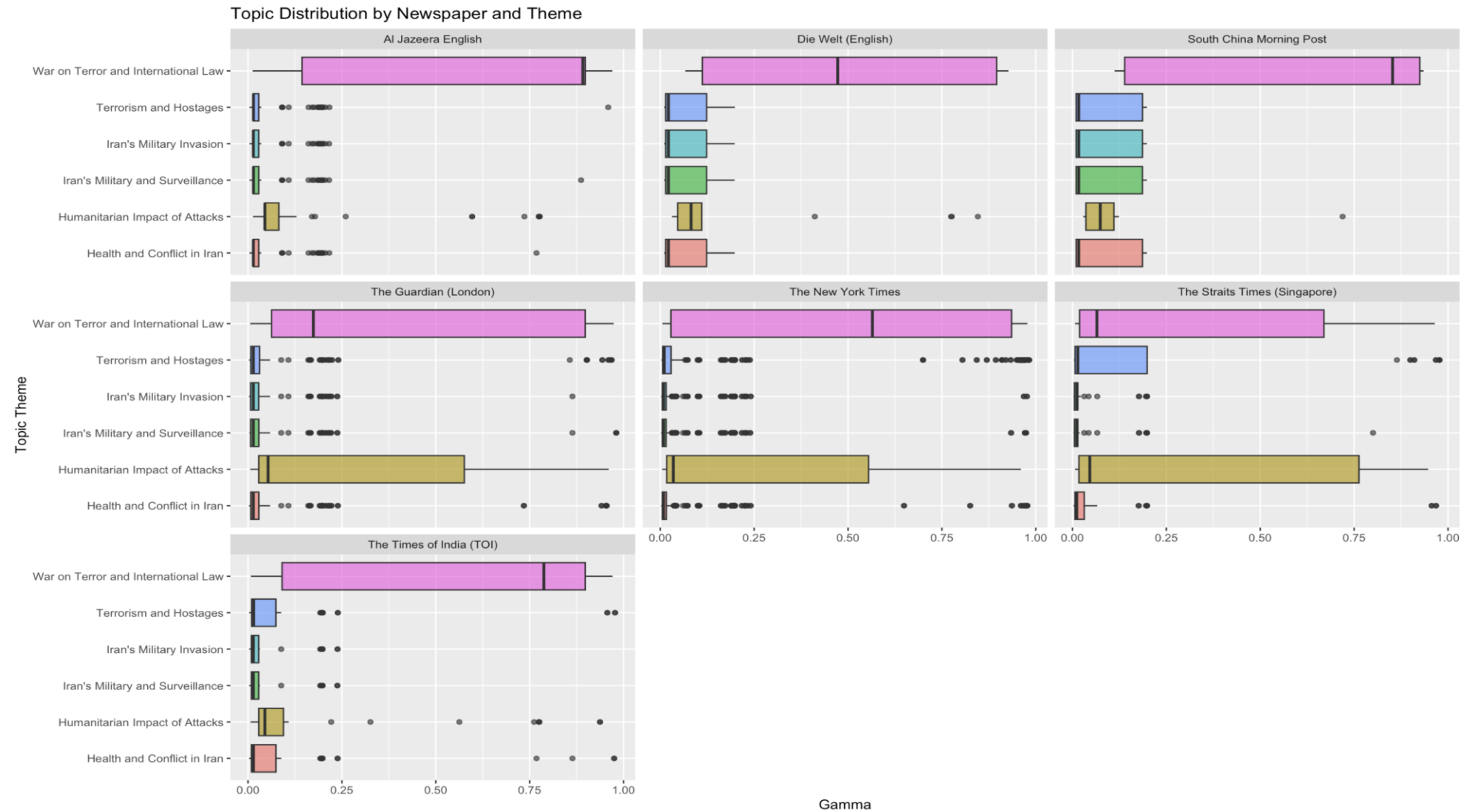




# Topic Modelling – ‘Palestine’



# Topic Modelling – ‘ Hamas’



# *Sentiment Analysis*

# VADER: Measuring Polarity

Positive

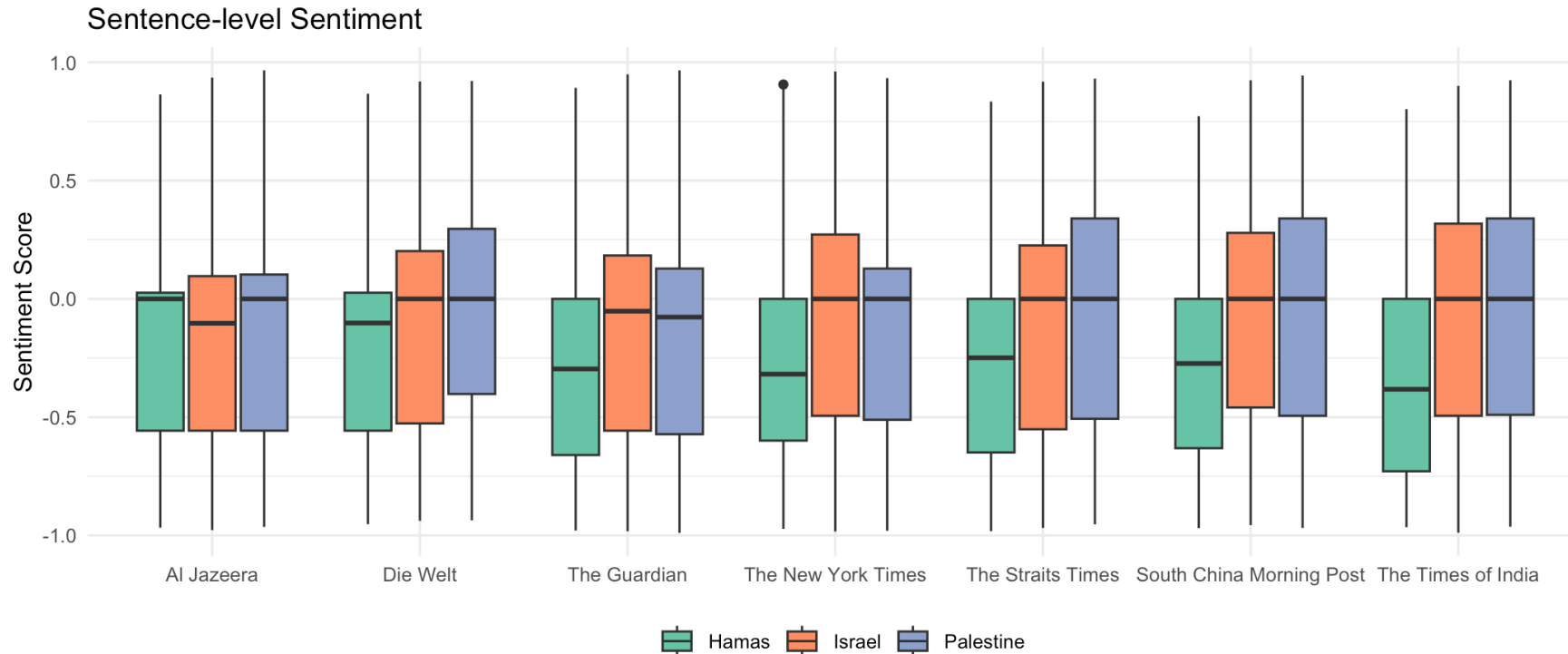
Score	Sentence
0.925	"Wang also reiterated Beijing's <b>support</b> for the two-state <b>solution</b> , saying the Middle East would be able to <b>enjoy</b> lasting <b>peace</b> and <b>Israel</b> would have more lasting <b>security</b> only when it was fully implemented."
0.915	"We believe that each of these efforts [to <b>protect</b> <b>Palestinian</b> civilians and increase <b>aid</b> into <b>Gaza</b> would be facilitated by <b>humanitarian</b> pauses, by arrangements on the ground that increase <b>security</b> for civilians and permit the more <b>effective</b> and <b>sustained</b> delivery of <b>humanitarian assistance</b> , the top US diplomat told journalists."
0.832	"Afterman said that China did have the <b>opportunity</b> to <b>play</b> a big role in <b>advancing</b> regional <b>stability</b> , for instance by <b>helping secure</b> the release of some of the more than 200 hostages that <b>Hamas</b> holds."

Negative

Score	Sentence
-0.988	"... the <b>brutal terror attack</b> that <b>killed</b> more than 1,400 <b>Israelis</b> , most of them civilians."
-0.973	"Biden said he was <b>shocked</b> and <b>sickened</b> by the <b>stabbing</b> of a six-year-old <b>Palestinian</b> boy in Illinois, with a 71-year-old man <b>charged</b> with <b>murder</b> and a <b>hate crime</b> ."
-0.968	"Noiyya's <b>death</b> takes the number of Britons <b>killed</b> in the <b>Hamas attack</b> to at least 10, with another six <b>missing</b> , some of whom are <b>feared</b> to be among the <b>dead</b> or <b>kidnapped</b> ."

## Polarity scores by Newspaper

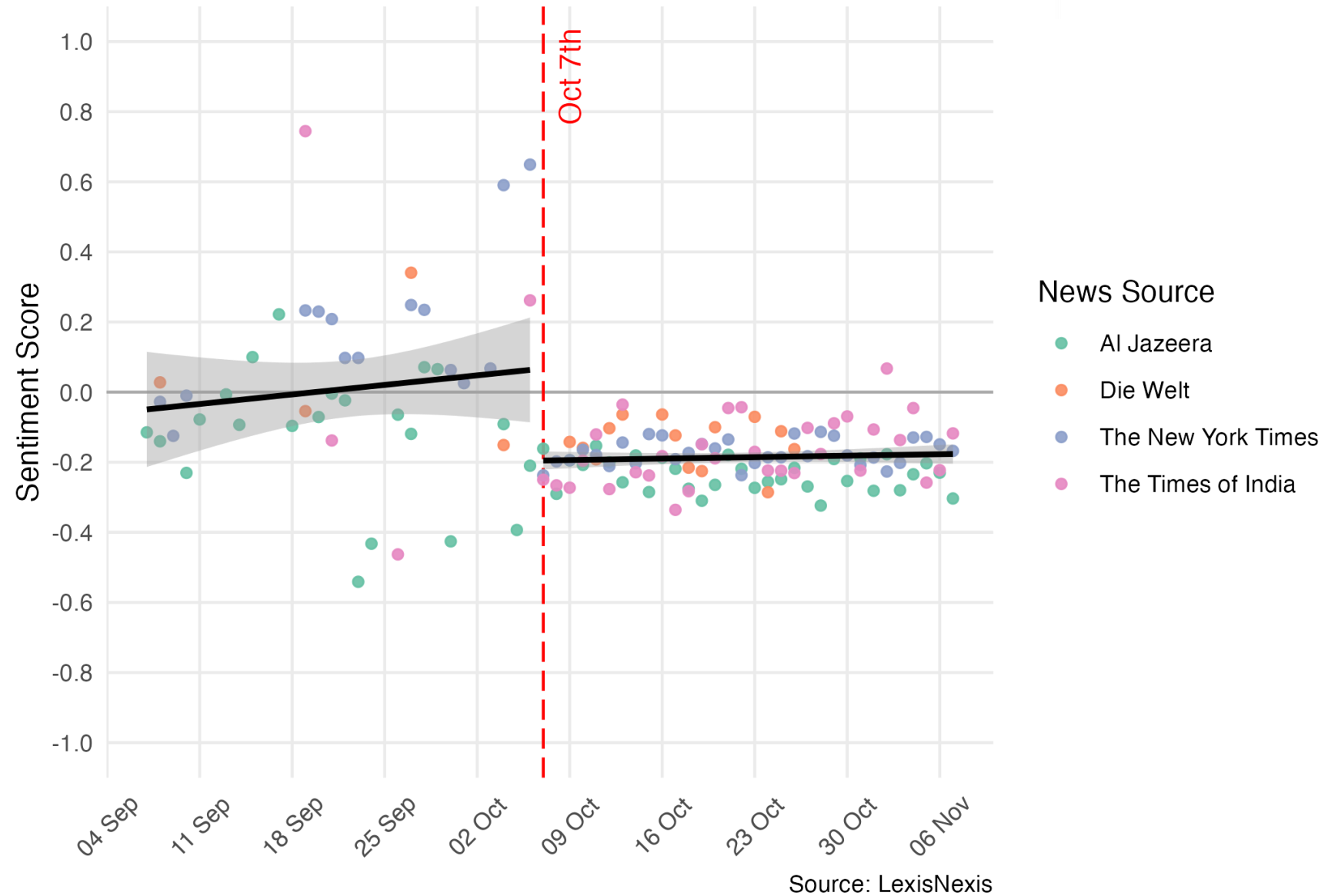
Box and whisker plot for each newspaper and label



- In general, mostly negative sentiments (perhaps because it's in the context of war reports)
- In general, distribution of sentiments associated with Palestine is higher for most newspapers although for The Guardian and The New York Times this is higher for Israel
- For all newspapers, Hamas associated sentiments are the least among the 3 labels, though across newspapers, the median value varies with the median being the highest in Al Jazeera and the lowest in TOI.

# Sentence-level Sentiment

News coverage of 2023 Israel-Hamas War

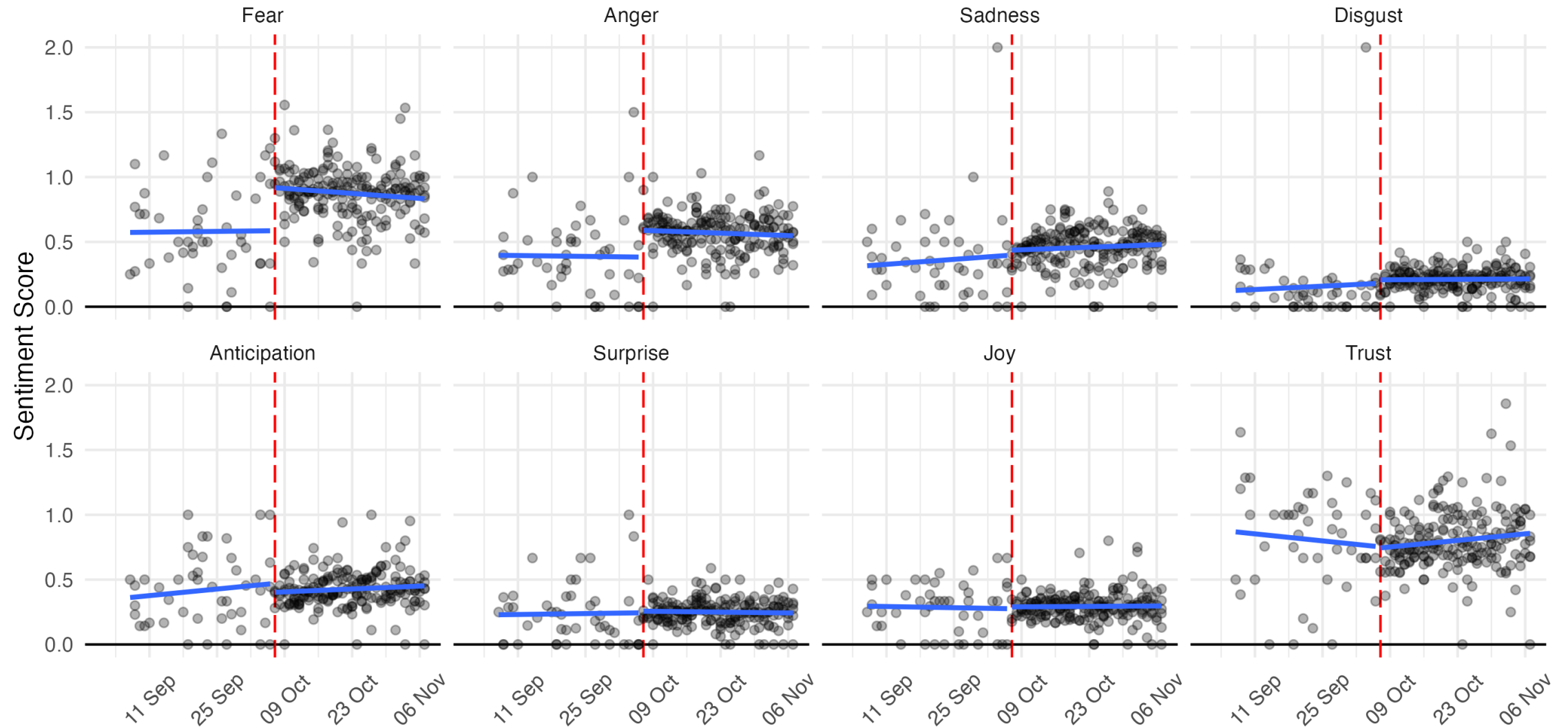


## NRC: Measuring Emotion

<i>Sentiment</i>	<i>Score</i>	<i>Sentence</i>
Anger	8	"These are anti-Jewish <b>racist</b> incidents and <b>hate</b> crimes in which Jewish people, property and institutions are singled out for <b>hate</b> , including death <b>threats</b> and <b>abuse</b> ."
Trust	8	"“So long as there is a United States Senate, the people of Israel will <b>never stand alone</b> ,” Senator Chuck Schumer, the majority leader, said in a floor speech before the vote, <b>pledging</b> that “the Senate will <b>back up</b> this resolution with <b>real</b> , swift, decisive action and resources."
Fear	7	"Israel’s order to empty 23 hospitals treating over 2,000 patients in Gaza presents health workers with a <b>horrifying</b> choice: force those in their care to make a journey that for many will be their last or stay and treat their patients under the <b>impending threat</b> of bombardment."
Disgust	6	"The terrorist attack by Hamas against Israelis -- the <b>worst</b> massacre of Jewish people since the Holocaust -- was <b>horrid, barbaric</b> and <b>inexcusable</b> ."
Anticipation	5	"...an injured man lies inside an ambulance <b>waiting</b> at the Rafah border crossing in the southern Gaza Strip before receiving medical care in Egypt."
Joy	5	"She only went to a <b>party</b> , to a <b>festival</b> , to have some <b>fun</b> , she said tearfully, clutching a picture of her daughter who was kidnapped from the Supernova <b>music</b> festival on the Gaza border."
Sadness	5	"A Red Cross mission has described scenes of <b>chaos</b> and <b>exhaustion</b> in the face of the total blockade by Israel, a critical fuel <b>shortage</b> and <b>relentless</b> bombing."
Surprise	4	"... warned of a “ <b>looming</b> humanitarian <b>catastrophe</b> ” as the Israel Defence Forces ordered civilians to <b>urgently</b> leave the Northern part of Gaza."

# Sentence-level Emotion

## News coverage of 2023 Israel-Hamas War

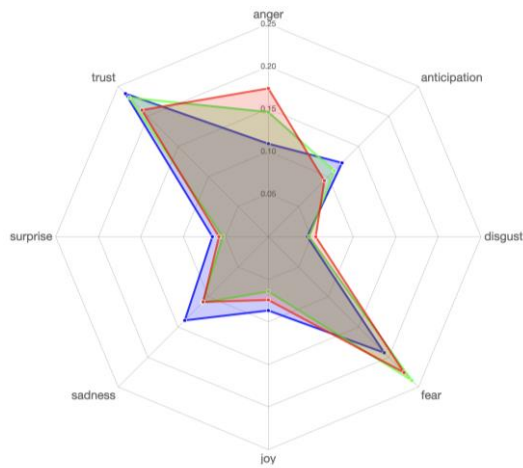


Source: LexisNexis

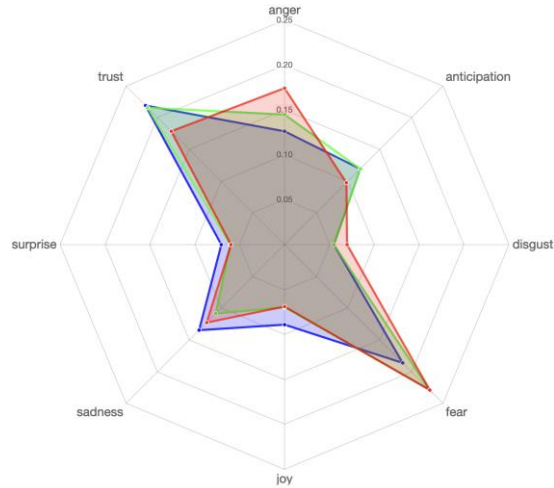


# Plutchik's wheel of emotions

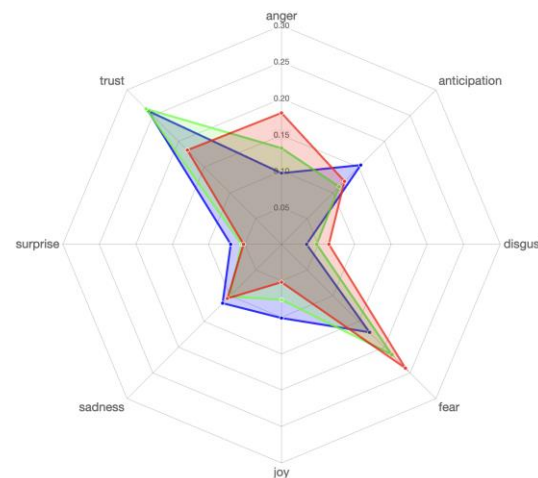
% based spread of NRC Lexicon based sentiments in Key label



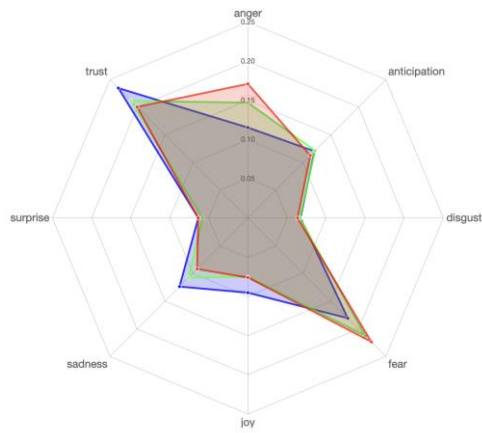
*Al-Jazeera*



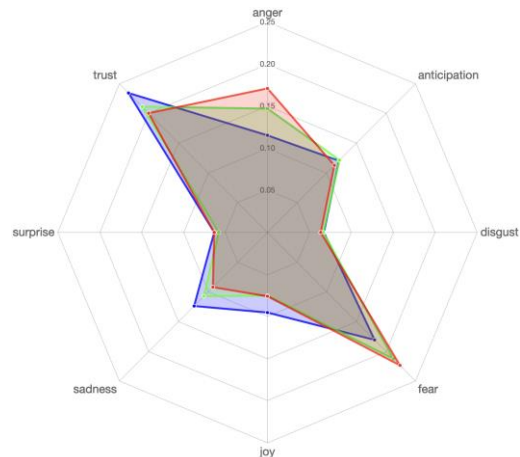
*The Guardian*



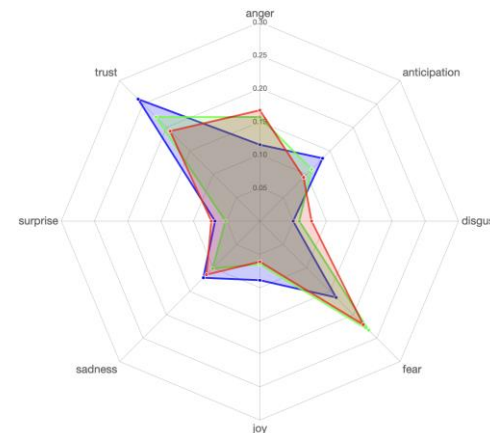
*South China Morning Post*



*Die Welt*



*New York Times*



*Times of India*

- *Much more trust-based words for Palestine and Israel as compared to Hamas*
- *Greater proportion of anger-based words for Hamas and Israel as compared to Palestine*
- *Much more sadness-based words for Palestine as compared to the others*

■ Hamas
 ■ Israel
 ■ Palestine

## *Discussion & Limitations*

## Limitations

- *Skewed sampling (by certain news sources and oversampling for time after outbreak of war)*
- *Models don't account for word position or part of speech (POS): No distinction between the one attacking and the one being attacked*
- *Small sample of news sources*
- *Limited time period*
- *Limited level of granularity*

```
```{r}
library(vader)

# Vader doesn't take into account causality
get_vader("Israel attacked Palestine")
get_vader("Palestine attacked Israel")

# The problem persists even when there is a single subject
get_vader("Palestinians were killed")
get_vader("Palestinians were killing")

```
```

|                |          |     |         |         |           |
|----------------|----------|-----|---------|---------|-----------|
| word_scores    | compound | pos | neu     | neg     | but_count |
| "{0, -2, 0}"   | "-0.459" | "0" | "0.4"   | "0.6"   | "0"       |
| word_scores    | compound | pos | neu     | neg     | but_count |
| "{0, -2, 0}"   | "-0.459" | "0" | "0.4"   | "0.6"   | "0"       |
| word_scores    | compound | pos | neu     | neg     | but_count |
| "{0, 0, -3.5}" | "-0.67"  | "0" | "0.308" | "0.692" | "0"       |
| word_scores    | compound | pos | neu     | neg     | but_count |
| "{0, 0, -3.4}" | "-0.66"  | "0" | "0.312" | "0.688" | "0"       |

## Further Work

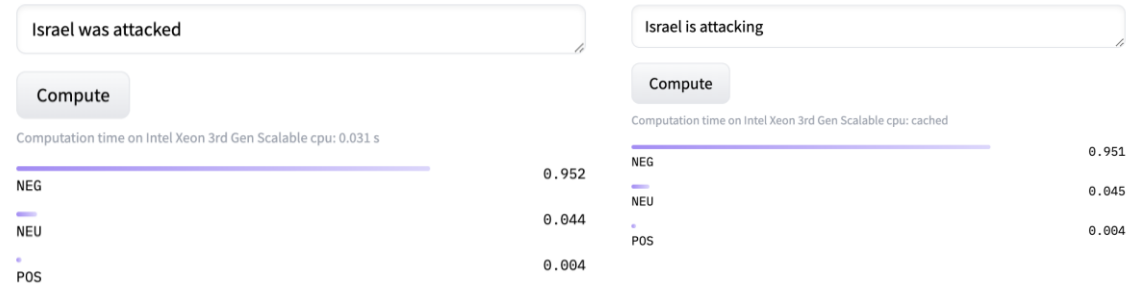
- *Increase number of news sources and articles*
- *Increase time period*
- *Sentiment analysis by modelled topic*
- *NLP-based method: still doesn't classify negative sentiments into further categories (e.g. "oppressed" vs. "oppressor") and potential for marginal bias depending on training data*
- *Fine-tuned text classification model to distinguish between the one who is acting and the one who being acted upon*

 **Hugging Face**

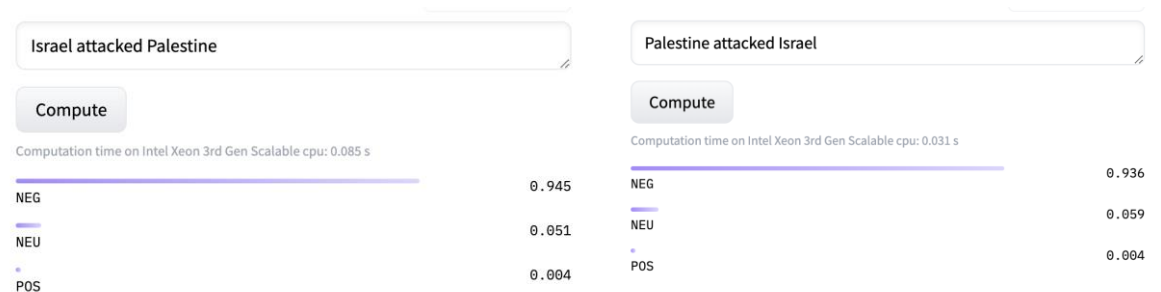

Hugging Face is way more fun with friends and colleagues! 🤗 [Join an organization](#)

 **finiteautomata/bertweet-base-sentiment-analysis** 

### Limitation in classifying negative sentiments further



### Presence of Bias depending on subject



## References:

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