>> FAO Statistics Division

DataLab

COVID & Social Unrest

12th August 2020

Outline

- ➔ Data
- ➔ Methodology
  - ◆ Topics
  - ◆ Sentiment
- ➔ Shiny App

Data

615,862
Tweets

127
countries

137
media coverage

4
Languages:
. English
. Spanish
. French
. Portuguese

Feb - Now
time range

Tweets classification based on keywords

- A tweet posted by any media tracked by our API.

- It is collected and then stored in a NoSQL DB.

Language detection

- It detects if the tweet language is in: EN, ES, FR or PT.

- The other languages are kept in the DB, but not used further steps.

Text processing

- It removes the “stop words”: the, a, that, etc…

- Word stemming

- Bag of words: text is broken down into words

TOPIC keywords

- Each topic is represented by a list of keywords.

- The list of keywords starts with a short list, and then the tool enlarge it with synonyms, related words.

Presence

Absence

- A dichotomous variable is created in the DB for each topic.

- 1: Presence
- 0: Absence

➔ Target topics:

- Social Unrest
- COVID
- **COVID & Social Unrest**

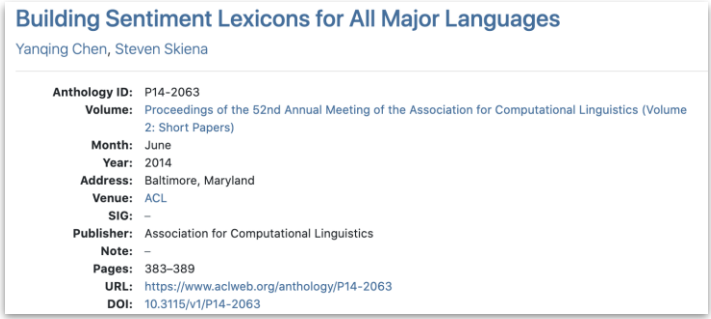
Topics

- The tweets are **classified** into one of the **four categories** shown in the table below.

		Social Unrest	
		No	**Yes**
COVID	**No**	Other	Social Unrest
	Yes	COVID	**COVID & Unrest**

Sentiment Index: polarity

- Simple sentiment index based on the Python library: ***`polyglot`***
- The library has **polarity lexicons for 136 languages**.
- The scale of the words' **polarity** consisted of three degrees:
  - +1 for positive words,
  - -1 for negatives words.
  - Neutral words will have a score of 0.
- There is a polarity dictionary for each language.
  - The dictionary is built from a set of **seed words**, and then the polarity of the other words is estimate **via graph propagation**.



Building Sentiment Lexicons for All Major Languages

Yanqing Chen, Steven Skiena

Anthology ID:	P14-2063
Volume:	Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (Volume 2: Short Papers)
Month:	June
Year:	2014
Address:	Baltimore, Maryland
Venue:	ACL
SIG:	–
Publisher:	Association for Computational Linguistics
Note:	–
Pages:	383–389
URL:	https://www.aclweb.org/anthology/P14-2063
DOI:	10.3115/v1/P14-2063

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Example: *"The movie was really good."*

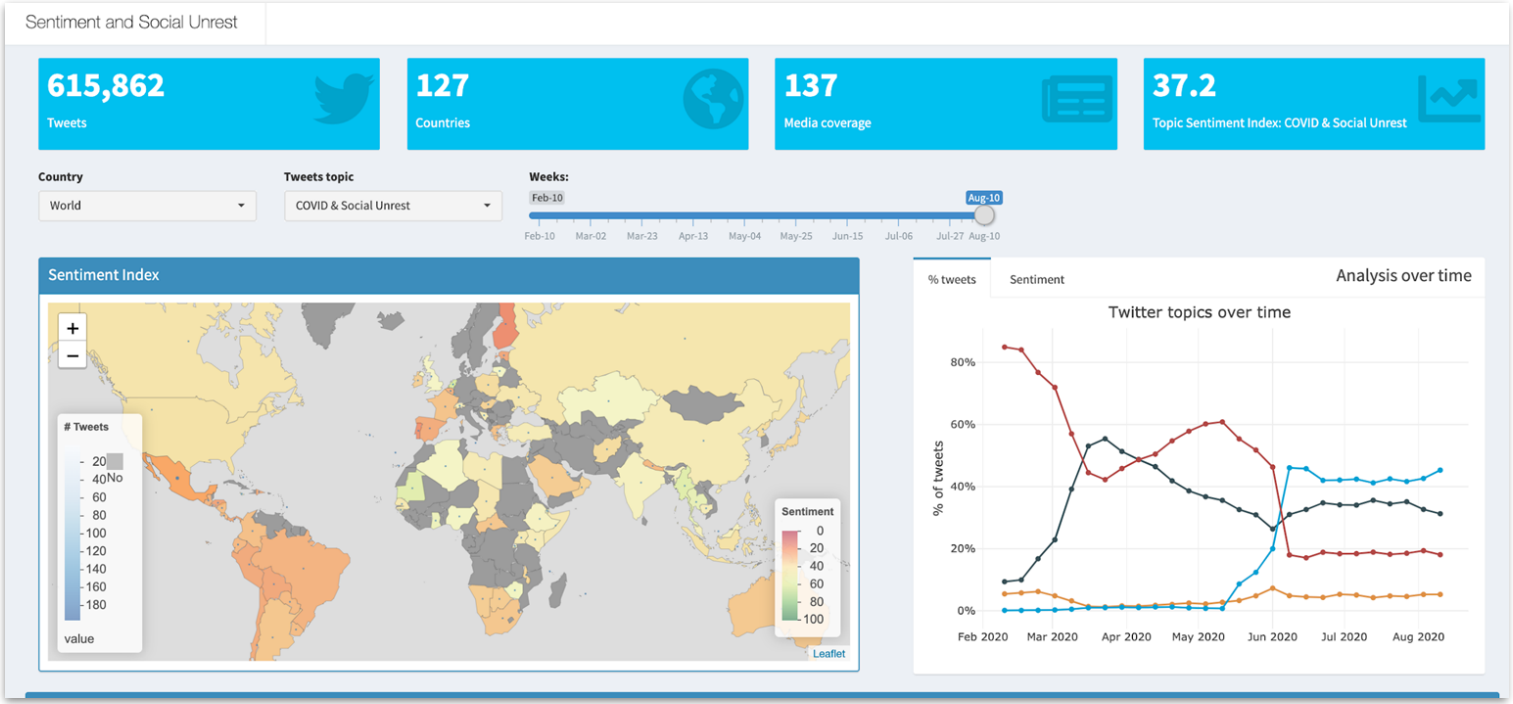
Word	Polarity
The	0
movie	0
was	0
really	0
good	1
.	0

Sentiment Index

The sentiment index for a tweet is the rate of positive words in the full text.

$$SI = 100 \times \frac{\#\text{ positive words}}{\#\text{ positive words} + \#\text{ negative words}}$$

Shiny App



https://foodandagricultureorganization.shinyapps.io/sentiment/