



Uncovering Multiple domains in Social Movement — —investigating the #Metoo movement with an NLP approach

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ABSTRACT

This paper is to uncover practical implications of the topics and sentiments around the MeToo movement, as well as to explore their theoretical importance for the theoretical investigations using NLP approach.

The research question is “Can a social movement such as MeToo be analyzed using Twitter-based User Generated Content and would such analysis reveal active agents that influence its development?”

I use a text-mining methodology that extracts tweets to analyze cultural background and sentimental information behind the movement. During my exploration, I find that the movement has extended into other semantic domains outside of sexual assault such as "white supremacy" and "police violence". I look at literature about violence against Indigenous women and use the colonial theory to explain these findings.

METHODS & DATA

Data:

Total sample combines two datasets: one dataset contains approximately 390,000 tweets downloaded from data.world and another dataset contains 13,487 tweets crawled from twitter API. Only two columns are kept in the datasets: ‘text’ and ‘dateoftweet’.

Table 1 Description of cleaned data

	dateoftweet	text
0	03/05/2020	suck everyday don t security people infiltrate...
1	03/05/2020	s democrat front runner tonight metoo activist...
2	03/05/2020	housing training pay aggrieved female resident...
3	03/05/2020	gaining traction metoo movement victim patel s...
4	03/05/2020	onair chill take midol democrat pollster kil

METHODS & DATA

Method:

- **LDA Topic Modelling**

Latent Dirichlet Allocation (LDA) is used to extract the hidden topics from large volumes of text.

- **Text Analysis**

I use TF-IDF to identify the most frequently used terms in the tweets.

- **Sentiment analysis**

The Sentiment Analysis approach is used to classify tweets according to sentiments expressed in them.

RESULTS – LDA Topic Modeling

After the analysis with the LDA model, five topics linked to the #MeToo movement are identified. I find #BlackLivesMatter, #MMIW and #notinvisible in the topic description. The #MMIW and #notinvisible are specifically created for Indigenous women who still receive almost no attention, despite the high rates of violence them.

Table 2 Description of topics in #Metoo tweets

Topic name	Topic Description
Public Figures	Tarana Burke started the movement that was later supported by Alyssa Milano and that reached RealDonaldTrump or Melania Trump against defendants such as Thomas Frieden or Harvey Weinstein.
Sexuality	Survivors of sexual harassment who prosecute their abusers
Female Topics	Women stand together for feminism, females, girlfriend
Media	The stories across the Internet, Hollywood actresses, media and the news
Other Hashtags	The #MeToo movement's relation to #Timesup, #BlackLivesMatter, #MMIW, #GenderEquality, #notinvisible and #WomanEqualityDay

RESULTS – Text Analysis

Based on TF-IDF value, I draw a bar chart and a tag cloud to show the most salient phrases in movement. I find "police violence" was mentioned 383 times in all tweets, while "white supremacy" was mentioned 381 times.

These topics can be explained by Stoler's theory about gender, race and colonial politics (Stoler,1991).

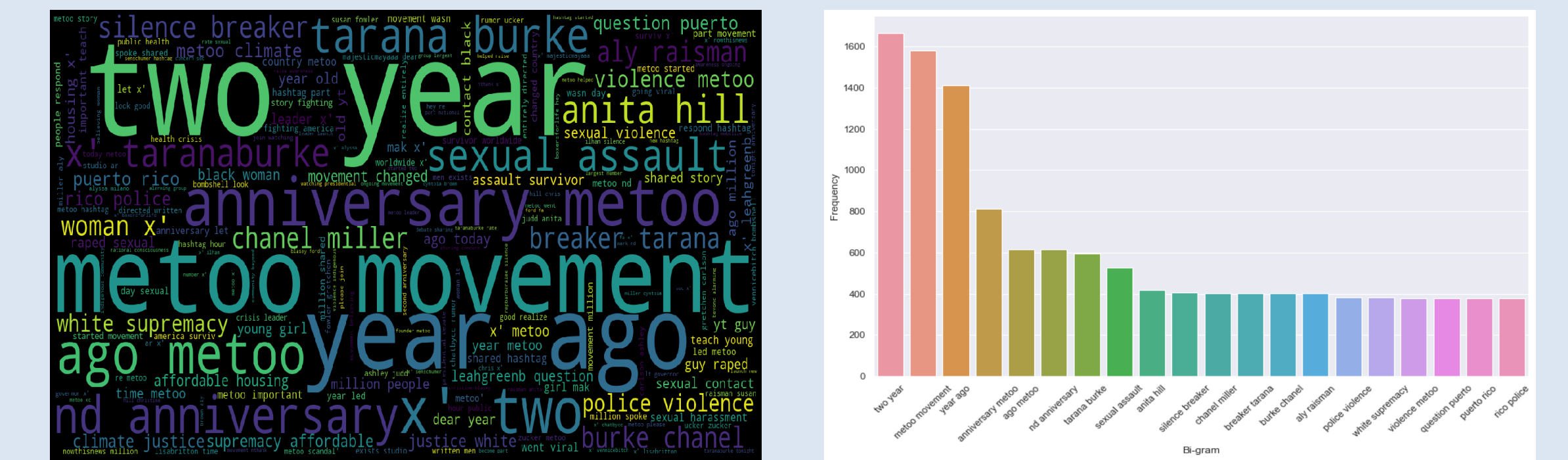


Fig 1 Word cloud of #Metoo Tweets Fig 2 Most salient phrases in #Metoo Tweets

RESULTS – Sentiment Analysis

I use SA approach to calculate the sentiment score of each tweet, which help me learn the feeling of twitter users.

Table 3 Sentiment score of #Metoo tweets

	dateoftweet	text	sentiment	sentiment_score
0	03/05/2020	suck everyday don t security people infiltrate...	negative	-0.1280
1	03/05/2020	s democrat front runner tonight metoo activist...	positive	0.4404
2	03/05/2020	housing training pay aggrieved female resident...	negative	-0.1027
3	03/05/2020	gaining traction metoo movement victim patel s...	negative	-0.4939
4	03/05/2020	onair chill take midol democrat pollster kil	neutral	0.0000

LITERATURE

Stoler, Ann Laura. "Carnal knowledge and imperial power." Gender at the Crossroads of Knowledge (1991): 51-101.

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