Spatio-Temporal Analysis of Ethnic Conflicts and Human Rights Violations in Africa and the Middle East

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Aim and Motivation:

- We focus on the studies of Ethnic conflicts and Human Rights violations, and their relations with socio-economic factors in certain countries of the African continent and the Middle-East.
- Ethnic wars continue to be globally the most common form of armed conflicts, but the mechanisms that lead a society down the path of ethnic conflict are yet to be fully understood.

Data Sets Used:

1)GDELT Event Database: Extracted sums of the number of articles with event codes pertaining to ethnic conflict and human rights violations in countries of Africa and Middle-East.

2)Human Development Index: HDI data for countries from United Nations Development Programme.HDI is a composite statistic of life expectancy, education, and income per capita indicators, which are used to rank countries into four tiers of human development.

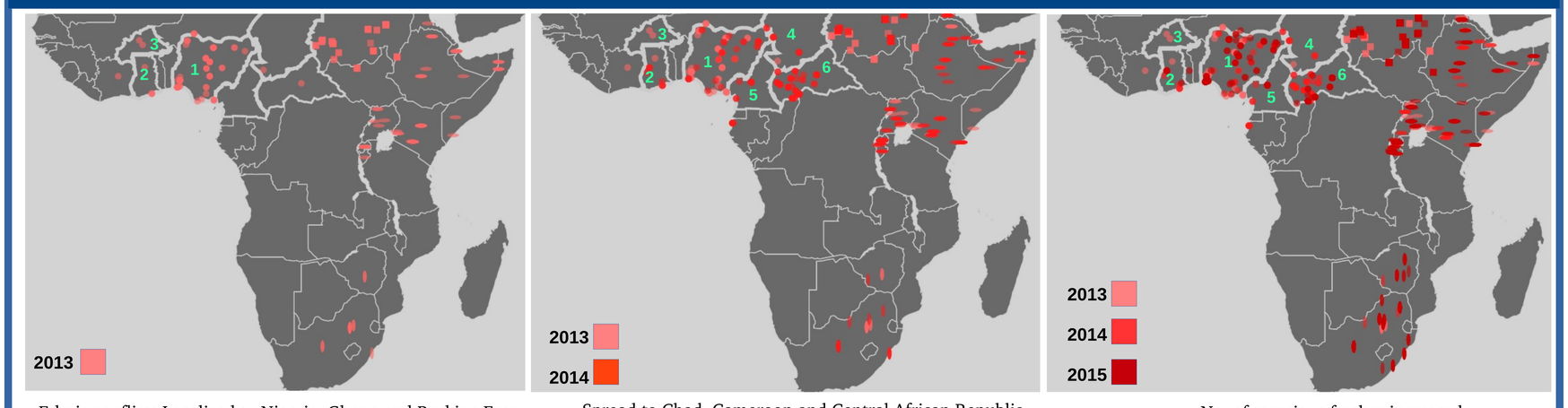
Future Work:

- Finding how the ethnic cleansing counts and human rights violation is associated with HDI of India and its various states.
- Finding connection between democratization and the occurrence of ethnic conflict and human rights violation.

References:

- Judith Vorrath, Lutz Krebs and Dominic Senn, Linking Ethnic Conflict & Democratization: An Assessment of Four Troubled Regions, June 2007
- Oskar N.T. Thoms & James Ron, Do Human Rights Violations Cause Internal Conflict?, Human Rights Quarterly 29, 674-705, 2007, Johns Hopkins University Press
- Human Development Index http://hdr.undp.org/en/content/human development-index-hdi
- The Use of Faces to Represent Points in K-Dimensional space graphically by Herman Chernoff in Journal of the American Statistical Association.
- Ifuse http://apps.web2labs.net/BDFusion/HomePage.html

Spatio-temporal distributions of ethnic conflicts and human rights violations:



Ethnic conflicts Localized to Nigeria, Ghana and Burkina Faso

Spread to Chad, Cameroon and Central African Republic

No. of mentions further increased

Fig 1: Spatio temporal spread of ethnic violence in Africa

- Using dataset1 we obtained the locations where the ethnic violence mentions were reported in the news articles.
- On performing density based clustering we obtained 3 major clusters for Africa mapped to different shapes in Fig 1.
- The color has been mapped to mentions for different years.

supplementary(http://apps.web2labs.net/BDFusion/DCommerce/GDELT/WorldBubbleAllYears.html)

- In 2013 cases were localized to 1-Nigeria, 2-Ghana and 3-Burkina Faso.
- In 2014 ethnic violence started spreading in 4-Chad, 5-Cameroon and were reported in large numbers in 6-Central African Republic.
- In 2015 the number of mentions in news reports increased in all these regions.

Statistical analysis of HDI and correlations with the media reports of ethnic conflicts and human rights violations:

- The HDI from dataset 2 and number of mentions reported from dataset1 has been plotted on a spatio temporal visualization in Fig 2.
- We find a negative correlation between the HDI and the number of mentions of ethnic violence Fig 3.
- Fig 4 shows that starting from year 1980 HDI incremented with the decrease in mentions of human rights violation.
- In recent years human rights violation in these countries has increased. As a result HDI fails to increase.

supplementary(http://apps.web2labs.net/BDFusion/DCommerce/GDELT/chernOffWorld.html)

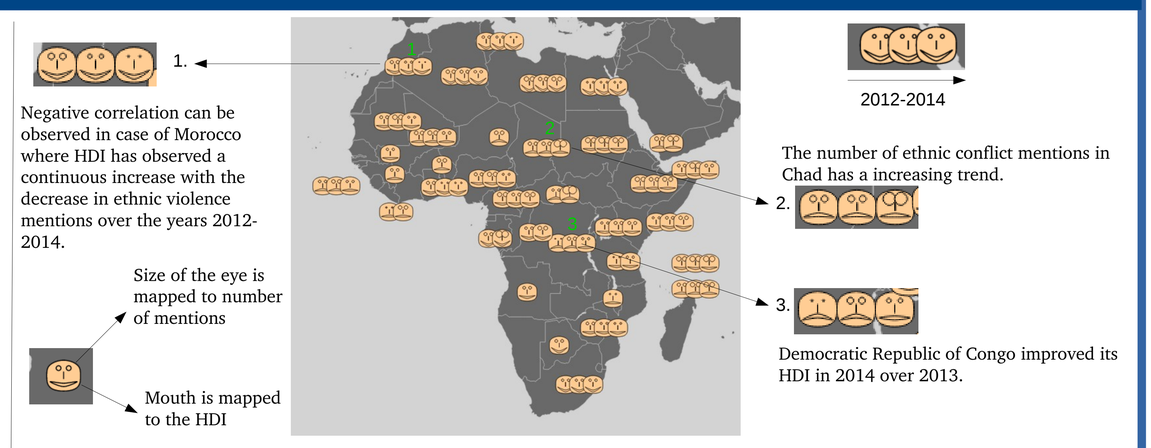


Fig 2 : Spatio temporal distribution of both HDI and number of ethnic violence mentions for different years.

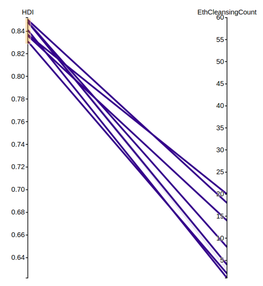


Fig 3 : When higher values of HDI in middle east is selected, we find them associated with lower values of number of mentions for ethnic conflicts as seen in a parallel coordinate view

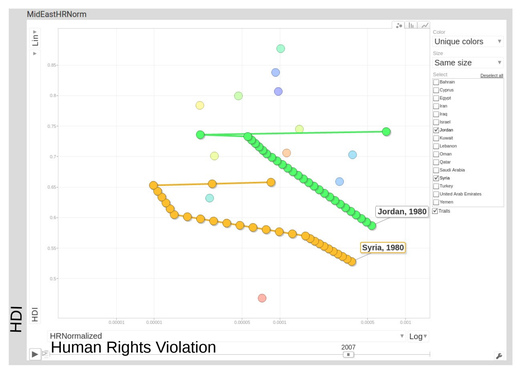


Fig 4 : Negative correlation in Syria and Jordan

Trends and impact of ethnic conflicts and human rights violations from media reports:

- Used average tone of the articles over the years from dataset1.
- Computed average number of mentions of human rights violation in news articles for different countries and mapped to size of the bubble in Fig 5.
- Fig 6 represents that 1-South Africa, 2-Egypt and 3-Saudi Arabia have lesser number of human rights violation mentions.
- We observe a general trend that the average tone of recent years is negative when compared to past years except for countries like Algeria, UAE, Qatar and Somalia which have a mixed trend.

supplementary(http://apps.web2labs.net/BDFusion/DCommerce/GDELT/worldcityzoom.html)

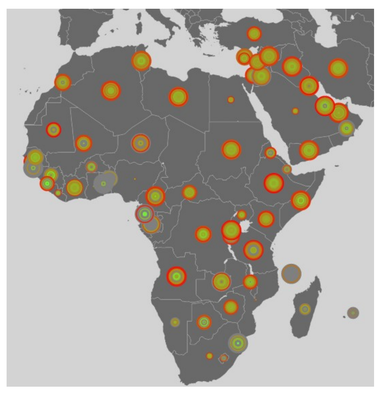


Fig 5 : Trend of ethnic conflict mentions over the years

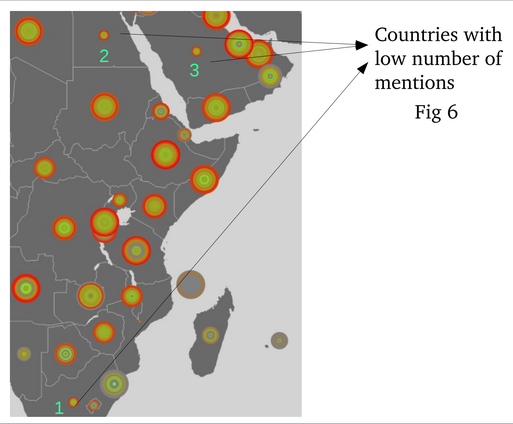
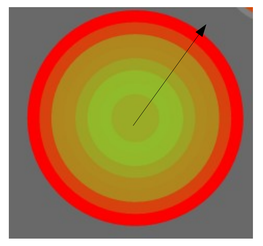
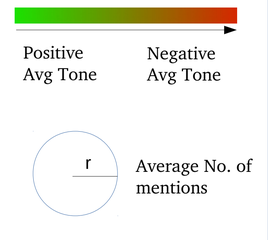


Fig 6





The color of the concentric rings in the bubble represents the average tone over the years from inward to outward direction.

This visual encoding shows that for the given time period the average tone of the articles grew from positive to negative.

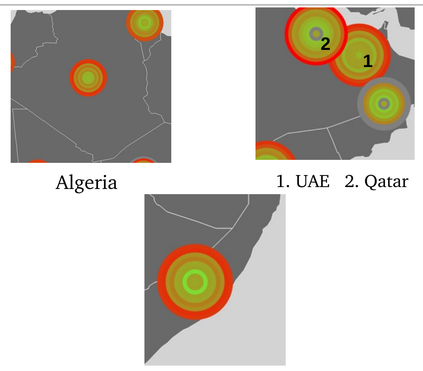


Fig 7 : Countries showing mixed trend