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Proximity-based Visualization of UNGA Voting Data

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Abstract

In this poster, we present proximity-based visualization of UN General Assembly (UNGA) voting data. Rather than social network-based approaches to visualize UNGA voting patterns, our approach has three strong points. First, the voting pattern trend between UN countries can be easily detected in our technique. Second, through proximity lines, users can effectively find out anomalies and figure out the reasons. Finally, we can clearly compare the voting pattern of the pivot country (in which we are interested) to any other UN member. For the details about our approach and initial results, please refer to Appendix.

1. Introduction

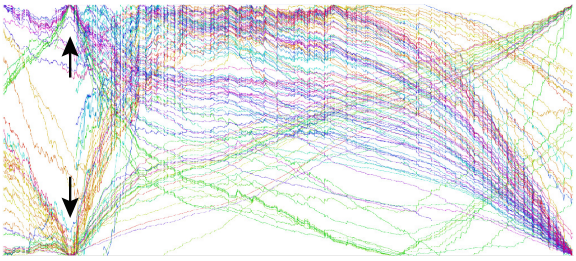

Figure 1: *Proximities between Cuba and other countries. There is a clear anomaly around the Cuban Revolution (indicated by arrow)*

In UNGA voting data [SV13], the votes recorded in *Yes*, *No*, *Abstain*, or *Absent* on 5,211 resolutions between 1946 and 2012 of 198 countries. While social network-based approaches have been accepted to understand voting patterns among the countries, they are difficult to discover what anomalies have occurred in the given time series because there is no time dimension. Animation or switching views between intervals can be used for representing time series, but this leads to increased cognitive load. We present proximity-based visualization that enable users to trace the changes of voting patterns over time. In our context, *proximity* is defined from the aggregated similarity of voting pattern between two UN countries over time.

2. Approach

Given a set of countries C including a pivot country p, we first compute the signed values between p and $q \in C - \{p\}$ in each resolution. Let us assume that two countries p and q voted on three resolutions r_1, r_2, and r_3 in chronological order. In r_1, p and q voted *No*. In this case, because p and q vote the same, the signed value between p and q is +1. In contrast, in r_2, if p voted *Yes* but q voted *No*, we assign -1. It is because *Yes* and *No* are opposed to each other. Furthermore, if p voted *Yes* but q did not vote in r_3, the signed value is 0. In the end, the proximity value is the accumulated value of the signed values over time.

One of the key questions from UNGA voting data is what resolutions indicate the notable shared interests among the countries. To distinguish the resolutions, we can define a weight value of each vote according to its ratio in a resolution. In addition, we can normalize the proximity values to emphasize the individual changes of proximity between the pivot country and any other countries.

As future work, we plan to develop automated anomaly detection methods for roll-call voting data (including UNGA voting data and U.S. Congress voting data).

References

[SV13] STREZHNEV A., VOETEN E.: United nations general assembly voting data. http://hdl.handle.net/1902.1/12379, 2013. 1