

Analyzing International Relations from British Parliamentary Debates

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ABSTRACT

This paper explores the relationship between nations or organizations from the perspective of British Parliament. The co-occurrence network of countries was constructed to detect the characteristics and interaction relationship among these countries. The evolution venation was also mapped to elucidate its continuous development. Results show that the analyses methods proposed in this paper and its application in British parliamentary debates can foster a deep understanding of the status and development of international relations among countries (or organizations).

CCS CONCEPTS

• Human-centered computing • Collaborative and social computing • Collaborative and social computing design and evaluation methods • Social network analysis

KEYWORDS

British Parliament, International Relations, Evolution Trend, Thematic Relevance

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1 Introduction

The interaction between countries will affect the development of internal institutional structure of countries[1]. And the study of international relations is of great reference value for diplomatic decisions. In recent years, an increasing number of scholars have adopted quantitative methods to the study of international relations[2]. Parliamentary texts record national discussions on

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domestic and international events, which could be important materials for studying international situation. Currently, few researches on international relations have adopted parliamentary debates with quantitative analysis. Correlation network is an effective method to study international relations. Riccaboni and Zhu have used global trade networks to illustrate how does geographic distance, electronic commerce, globalization and regionalization influence global trade[3][4]. Walter used network analysis to explain the difference in media attention among EU members[5]. However, these researches seldom involve with parliamentary data.

Compared with other official documents, British parliamentary debates are highly structural and rich of international interactions. This study adopted scientific metrology to construct the correlation network and the evolution of topics to illustrate international relations from the British perspective, which may be helpful to those who are interested in international relations.

2 Methodology

2.1 Data collection and preprocessing

British Parliament's data open website were used as the data source, where a total of 2585 records of parliamentary debates from 2010 to 2019 in XML format were collected. We use XML tags, machine learning and NLP techniques to extract the nations at paragraph granularity. The "European Union" mentioned was also extracted since it was one of the focus of the British Parliament. In order to obtain a representative set of nations with further filtered topic words, 759 was set as the word frequency threshold based on power law distribution.

2.2 Method

We calculated the intensity of co-occurrence relations between the nations or organizations and established a network from the British perspective. Then, the maximal connected subgraph was extracted. After that, we used Louvain algorithm to divide the community of the network. Finally, Vosviewer was used to visualize the whole network and each theme community.

In addition, we use Neviewer[6] to complete the visual display of the evolution of each theme community over time in the past decade.

3 Results and Discussion

3.1 Network characteristics analysis

The number of nodes of the network is 60 with 1672 edges, and the average degree is 55.73333. The All Degree Centralization is 0.0573, the All Closeness Centralization is 0.1019, and the Betweenness Centralization is 0.0003. Besides, the Watts-Strogatz Clustering coefficient is 0.9512 and the density is 0.9446. The network features show that there are mainly direct relationships among countries and the network has a clear trend of forming clusters with a few countries as the core. The 10 nations or organizations that have the highest frequency in the network are list below.

Ranking	Countries	Ranking	Countries
1	Ireland	6	Oman
2	European Union	7	Iraq
3	Syria	8	Israel
4	Russia	9	Afghanistan
5	United States	10	France

Table 1 Top-10 Nations or Organizations in the Network

3.2 Co-occurrence Network Analysis

We use Pajek to calculate the correlations and intensity between countries in the network. According to the close degree of correlation, countries are divided into four topic clusters: C1-European Union, C2-Syria, C3-United States, C4-Mali. As shown in Figure 1, the countries included in different clusters have obvious differences in diplomatic frequency.

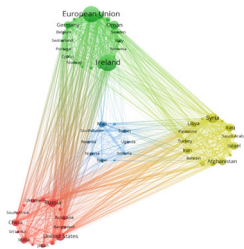


Figure 1 British Mentioned Nations/Organizations Co-occurrence Network

The British mentioned countries co-occurrence network reflects the international relations of all nations or organizations from the British perspective. There is a strong correlation between multiple clusters, which shows that there are many interactions between different international groups. Among them, the clusters C1, C2 and C3 are most closely linked, which shows that in the British parliaments debates, these factions interact closely and most international events or parliamentary discussions involve at least two factions at the same time. Besides, the faction represented by C3 is closely related to the factions of African countries

represented by C4, which shows that the United States, Russia, China and other powerful countries often participate in international affairs related to Africa.

3.3 Evolution analysis

Through community division and characteristic index calculation, the data collected was sliced by year to visualize the time evolution of the theme community.

On the whole, in the past decade of 2010-2019, the names of countries involved in the British Parliament’s data have a strong and obvious evolution path, as is shown in Figure 3.

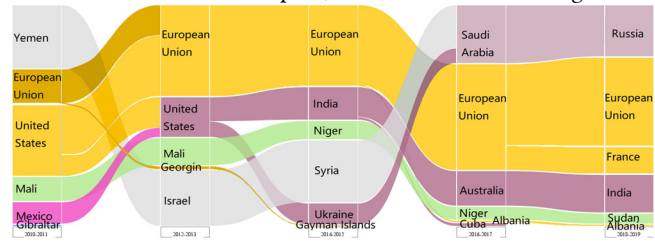


Figure 2 Evolution of International Relations based on British Parliamentary Debates

The continuity of the countries mentioned in 2010, 2011, 2012 and 2013 is obvious, which indicates that the major changes of the countries concerned by the British Parliament in these four years are relatively small, and also shows that the international situation is relatively stable.

4 Conclusion and Future Work

In this paper we used countries and organizations extracted from the British Parliamentary debates to construct the correlation network and the evolution chart. The results elucidate characteristics of international relations based on British parliament debates in the past decade. In future work, we will further study the international relations and the political attitudes using more data of the United States and the European Union, and provide a framework for the quantitative study of international relations.

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