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Faculty of Engineering
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Austrian Parliament Analyzer

BACHELOR'S THESIS

submitted in partial fulfillment of the requirements
for the academic degree

Bachelor of Science

in the Bachelors Program

Computer Science

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At the:
Institut für Telekooperation

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Linz, 20. November, 2015

Affidavit

I hereby declare that the following dissertation "Austrian Parliament Analyzer" has been written only by the undersigned and without any assistance from third parties.

Furthermore, I confirm that no sources have been used in the preparation of this thesis other than those indicated in the thesis itself.

Linz, on November 21, 2015

Markus Hiesmair

Acknowledgment

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Abbreviations

ÖVP Austrian People Party (german: Österreichische Volkspartei)

SPÖ Social Democratic Party of Austrian (german: Sozialdemokratische Partei Österreichs)

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Chapter 1

Introduction

One of the most crucial requirements of a democracy is transparency. There are several ways how one can gain information about the current and past political activities in Austria. One of the best possibilities among them are the publicly available protocols of the national council sessions. In these protocols every word said in a session is written down and that makes up the corresponding protocol. Unfortunately, these protocols are very long and it is hard to gain meaning out of it, because of its plain and simple structure and the great amount of data.

To be able to analyze and visualize the activities and relations of the politicians and parties in a better way, and to make the structure of the political system accessible to a broader audience, analysis tools are needed. This thesis documents the methods that can be used to perform automated analysis over the available data. The protocols are being extracted, transformed, analyzed and visualized.

1.1 Research Goals

The protocols are currently available in semi-structured form - through HTML files.[1] To be able to properly persist and analyze the data, the protocols have to be transformed into a fully structured form (e.g. Java Objects). The following elements will be extracted:

- Legislative periods and their sessions
- Politicians and their mandates

[1] Until the 19. legislative period, the protocols are only available in PDF-format. These protocols cannot be extracted with reasonable quality. Therefore they won't be used in the further work.

- Parliament clubs
- Discussions and speeches during the sessions

As soon as this is done, the extracted data can be persisted into an arbitrary relational database. Furthermore, some general and network analysis should be done on the data. In the following list some interesting applications on top of the extracted data are presented:

- Create a network graph which shows the relations among politicians and parliament clubs.
- Find groups of politicians (or parliament clubs) with the same attitudes.
- Analyze how homogeneous the attitudes of politicians of the same parliament club are.
- Find the politicians which take part in the most discussions.
- Find the most absent national council members.

In the final step the results should be visualized via a web application. The focus hereby lies in making the results as easy to understand as possible.

1.2 Austrian Parliament

The analysis approaches in this thesis can basically be used for every parliament or other similar political structure, given that data is available in a similar form. As this work is done at an Austrian university and the protocols of the national council are available as open data, the show case is built up on the Austrian parliament.

The Austrian parliament basically consists of two chambers, the national council and the federal council. The national council is elected through federal elections, whereas the federal council consists of delegates of the 9 provinces. Both chambers have different responsibilities and functions, and their goal is to ensure that the decisions are in the best interest for the Austrian people [4].

1.2.1 National Council

The national council consists of 183 members, which can band together to form so called parliamentary clubs. Usually for each political party, which got elected in the national council, there is one parliamentary club, but that is no necessity. The tasks of the national council include law-making, controlling the government, seeking solutions for current problems, determining the budget and much more [4].

After every election one or more parliamentary clubs have to build the government. These parliament clubs have to have in total at least 92 mandates (more than half of the overall mandates of 183). Politicians of the government are then selected to be the federal ministers. All other parliamentary clubs, which are not in the government are in the so called opposition. In most cases the government can make laws without the opposition, but in some special cases there is $\frac{2}{3}$ majority needed [4].

1.2.2 Federal Council

The federal council consists of 61 members. As the members are delegates of the provinces, their main duty is to represent their province and make sure the politics in the parliament are in the interest of the province they represent. To do so, they can raise objections against legislation of the national council, but most of the time the federal council only has the power to delay legislation and not to prevent it [4].

1.2.3 Analysis Scope

In this work only the data of the national council will be analyzed because there are no openly available data sources which could be used to include the federal council in the analysis. Furthermore, the national council has a lot more responsibilities and is of greater importance for the overall democratic process in Austria.

Chapter 2

Related Work

In the context of computer science, there are only a few works on automatically analyzing political structures such as a parliament. In 2013, Renzo Lucioni [2] used publicly available voting data from the Congress of the United States of America to analyze the relationships among politicians and how distinct the two main parties are. To achieve this, he used data from the 101^{st} Congress through the 113^{th} Congress and created network graphs which graphically showed which politicians vote similar. He also showed how the structure of the Congress developed over time. His results showed that the gap between the Republicans and the Democrats - the only two really relevant parties in the USA - became larger and larger over the last decades. This means that both parties vote more and more against each other. In the context of the Austrian parliament, similar analysis can be applied, if data is available in sufficient quality. For example, it can be analyzed which parties vote similar and if there exist relations between parties which are in the government and in the opposition. You can find the results for the Austrian parliament in Section 4.1.

An earlier work was done by Porter and Newman in 2005 [3]. They wrote a paper on network analysis of committees in the U.S. House of Representatives and tried to show the connections between representatives of the House and the committees and subcommittees. In these committees happens a big amount of the American legislation and especially the assignment of politicians and the change of it over time are interesting subjects of analysis. In their work Porter and Newman gain information without specific knowledge of the structure of the committees, using technologies of network analysis. In particular, they tried to find communities and their connections within the network of the committees to get information about strategic assignment of politicians in important committees. Furthermore, Porter and Newman used single-linkage clustering to get clusters of communities and their connections and also visualized that with a dendrogram representing the hierarchical structure of the committees.

Using techniques of network analysis they found out that there are certain correlations between communities and that there also high relations between a political position and the assignment to a committee.

In 2012, Amelio [1] also did a study on the voting behavior in Italy. She used multidimensional scaling, hierarchical clustering and network analysis.

Chapter 3

Design and Implementation

Overview... Architecture... General Components

3.1 Data Extraction and Transforming

3.2 Export into Database

3.3 Analysis

3.4 Visualization

Chapter 4

Results and Discussion

4.1 Relations of Parliament Clubs

Graph + Explanations

4.2 Relations of Politicians

Graph + Explanations

Chapter 5

Conclusions and Future Work

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