

U.S. Language Map

The rich tapestry of languages that weave through the United States



by **Brenda Alday** and **Will Curry**

The United States is one of the most racially and ethnically diverse nations globally. In 2016, the United States Census Bureau made a significant update to their language dataset, which includes 42 language categories, including languages from Africa and Asia [1]. The creation of this application serves as a valuable tool for users to explore and comprehend the extensive spectrum of languages spoken across the United States. Utilizing an interactive format, we allow users to zoom in to specific regions or zoom out to have a broader overview of the country.

Data

The dataset displayed in this project originates from the American Community Survey (ACS), conducted by the United States Census Bureau. Specifically, we utilized the B16001 table from the 2015 5-year estimate, which provides an extended perspective over a 5-year period of the "Languages Spoken at Home by Ability to Speak English for the Population 5 Years and Over." [2].

Process

Interacting with a nationwide dataset known for its abundance of information, it is logical to prioritize cleaning and preparing the data as the initial step for analysis. Additionally, we focused on 8 languages related to the international students enrolled in the 13th Intake of the Cartography Master Program. Despite the Census including 42 language categories, we visualized only data concerning non-English languages spoken at home. This decision allows us to distinguish areas where these languages are spoken with greater precision.

Design

After analyzing the histograms for each language and comparing them to the natural breaks method, in most cases, the distribution of information was skewed to one side, often falling within one or two data ranges. Therefore, we classified the data using the manual breaks method with six interval classes, including zero as one of the specified intervals. We assigned predefined color ramps to the data, enhancing the clarity of the information presented, which contrasts with the cold color basemap.

Conclusion

This interactive application not only provides a valuable resource for exploring language diversity in the United States but also serves as a useful tool to visualize a dense dataset and make it easier to understand and utilize the information.



Fig. 1 Integration of Dashboards within ArcGIS Web Experience

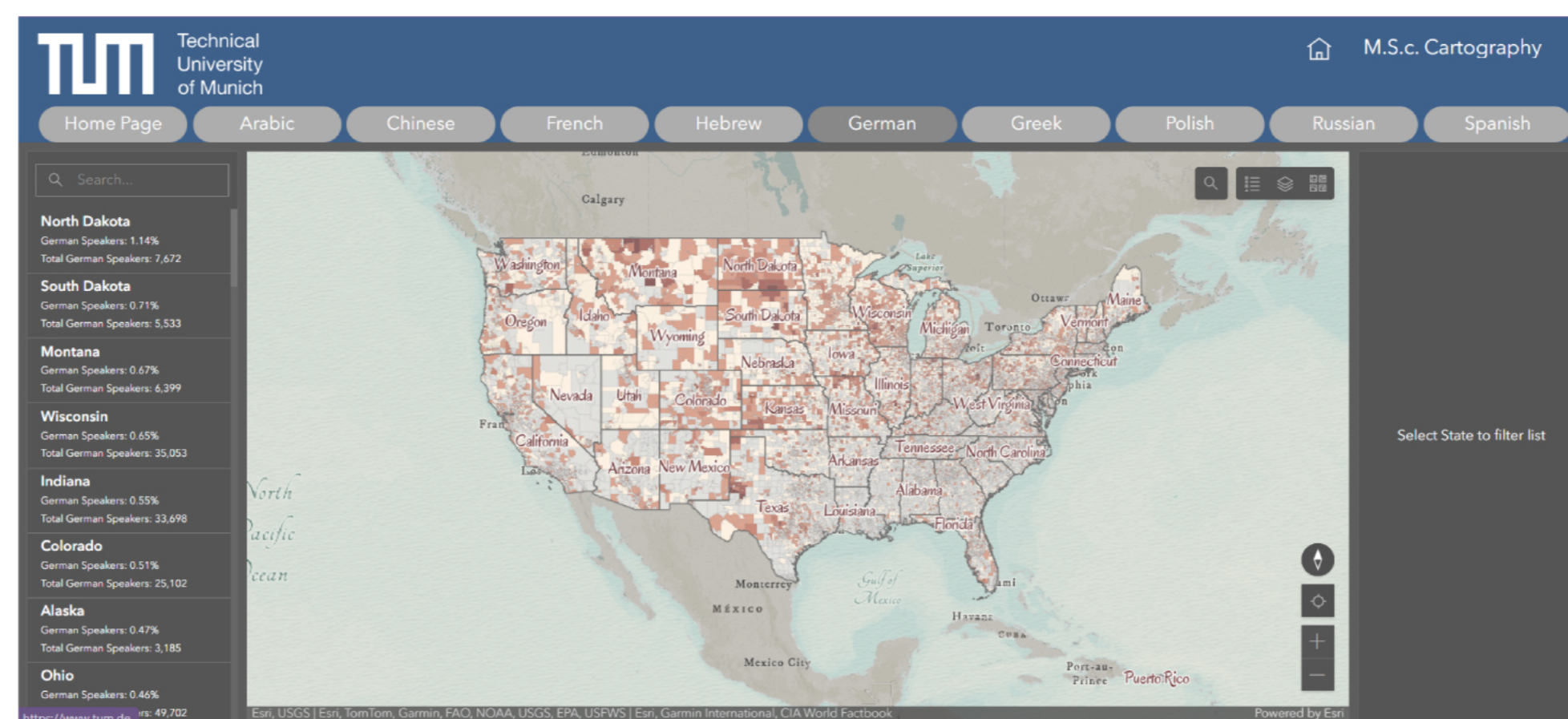


Fig. 2 Demonstrating the Functionality of the German Web Map Dashboard

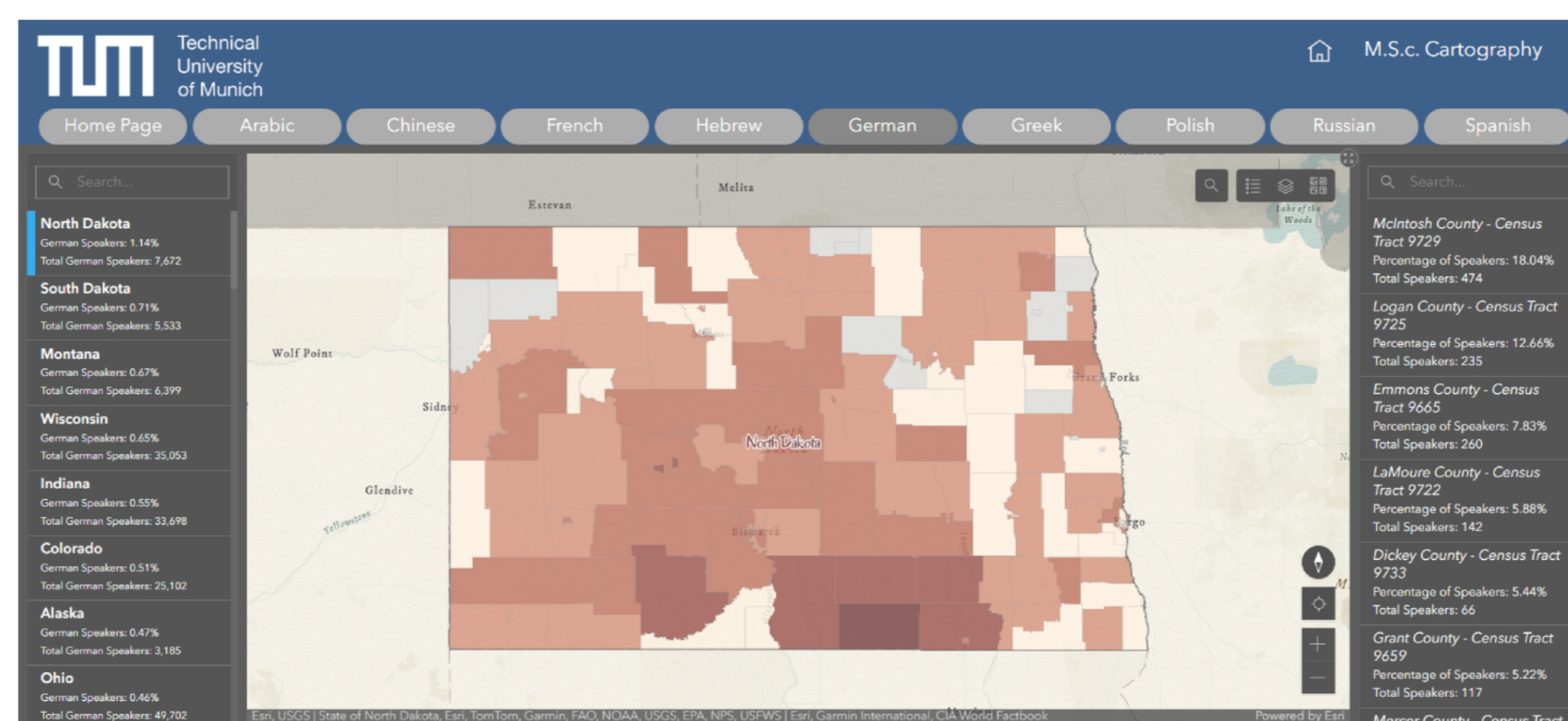


Fig. 3 Illustration of filtered information by State level in the German Web Map Dashboard, highlighting principal States with higher percentages of German Speakers.

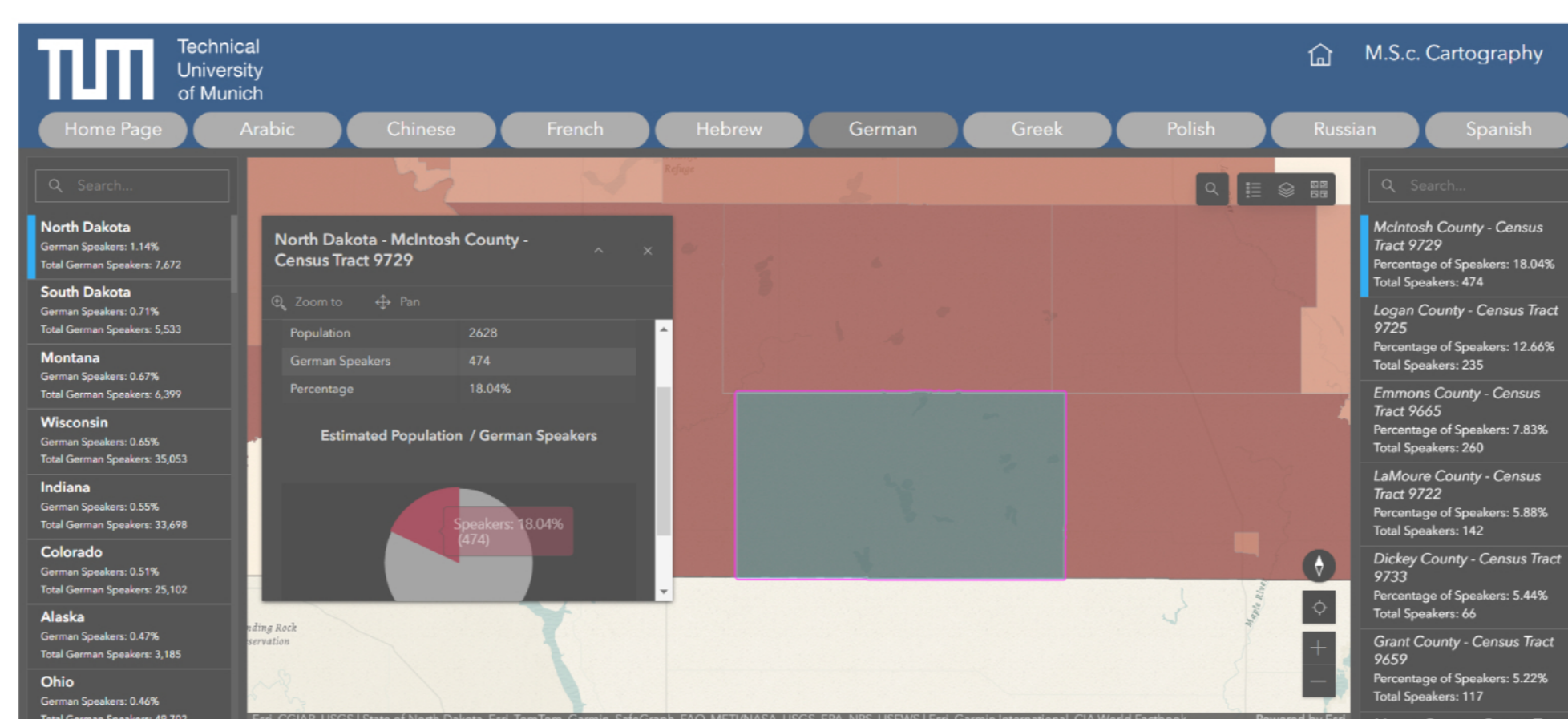


Fig. 4 Table and percentages of filtered detailed information by Census Tract level, highlighting the Highest concentration of German Speakers across the United States.

IMPRINT

Mapping Project
Winter Semester 2022/2023
Technical University of Munich
Brenda Alday
Will Curry

SUPERVISOR

Juliane Cron, M.Sc.
Chair of Cartography and
Visual Analytics

KEYWORDS

web map, languages, interactive map, us census 2015.

LINK

<https://experience.arcgis.com/experience/0e98cb34b4c3456dbc2eb58949141807/>



REFERENCES

- [1] Dietrich S. (2022, August). *Language Use in the United States: 2019*. American Community Survey Reports, from <https://www.census.gov/content/dam/Census/library/publications/2022/acs/aacs-50.pdf>
- [2] U.S. Census Bureau. (2015). *Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over*. American Community Survey, ACS 5-Year Estimates Detailed Tables, Table B16001. Retrieved November 23, 2023 from <https://data.census.gov/table/ACS5-T1Y2022.B16001?q=B16001>.

This project was created within the Cartography M.Sc. programme – proudly co-funded by the Erasmus+ Programme of the European Union.