

# Territorial Topology Analysis

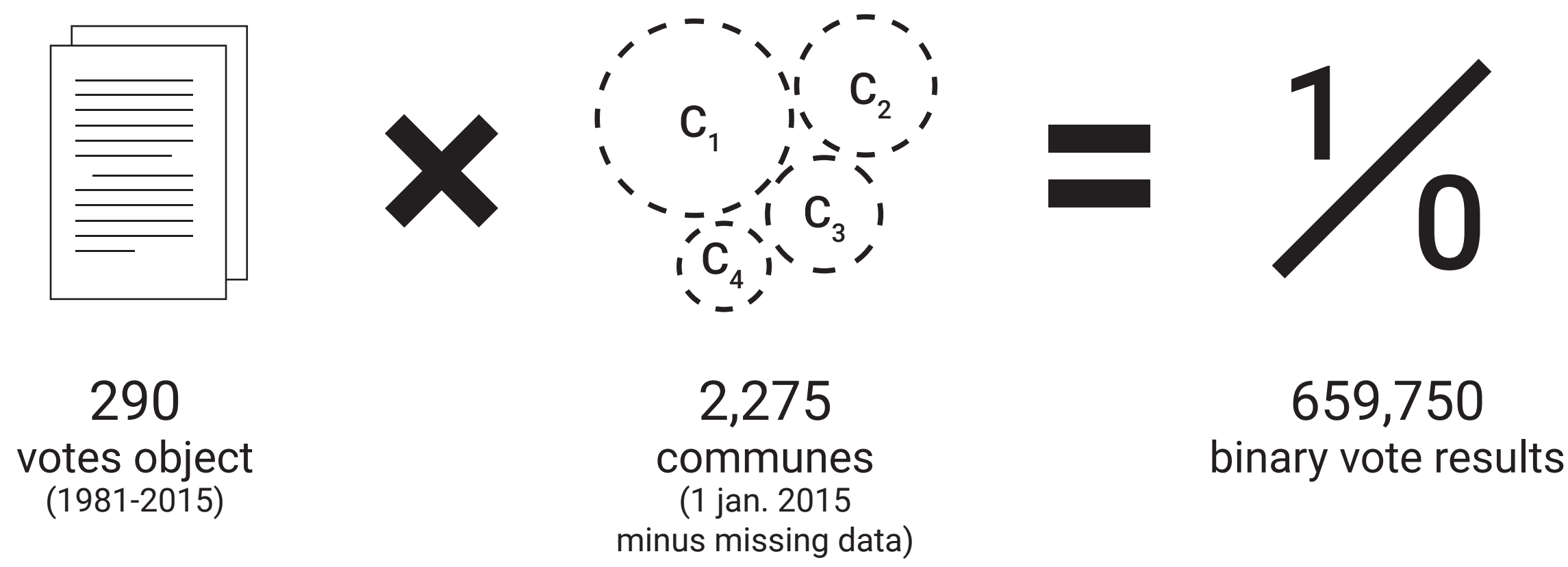
Shin Alexandre Koseki, PhD — info@shinkoseki.com

Both scholarly studies and common accounts of national politics enjoy pointing at the resilience of ideological divides in the population. In Switzerland, observers identify distinct regional communities from the collective behavior of local populations during popular votes. While research describes those communities in terms of party affiliation, participation and vote outcomes, current methods lack the capacity to measure their evolution across time.

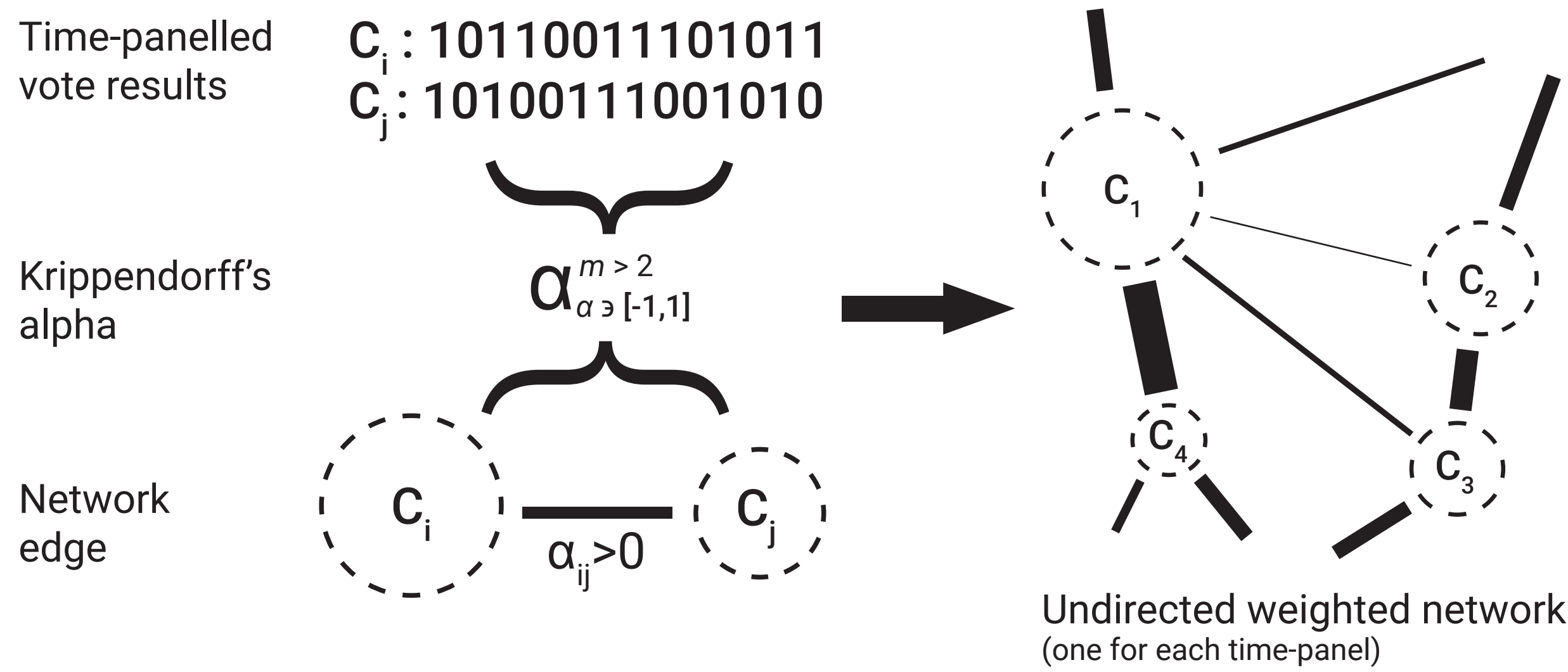
Against such limitation, this study uses a dataset of more than 650,000 municipal outcomes over federal popular votes to assess how local populations organize into different political communities since 1981. Here, I introduce “Territorial Topology Analysis” (TTA), a method that affords various means to evaluate the transformation of political communities by implementing a metric of political agreement/disagreement through Social Network Analysis.

Results show political agreement between Swiss local population increased over the last thirty years, and evolved from regional political clusters to communities made of distant populations. New divides and alignments in local populations vote outcomes thus highlight the dynamic equilibrium of national politics and a strengthening effect of urbanization and globalization on democracy.

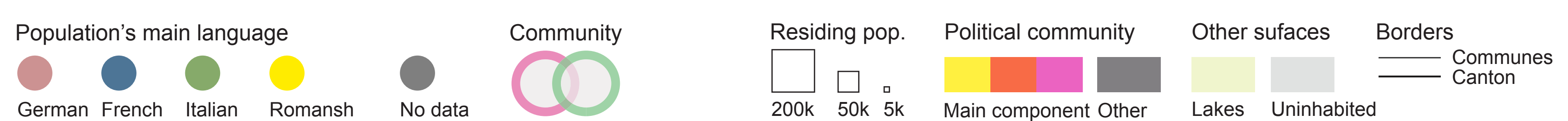
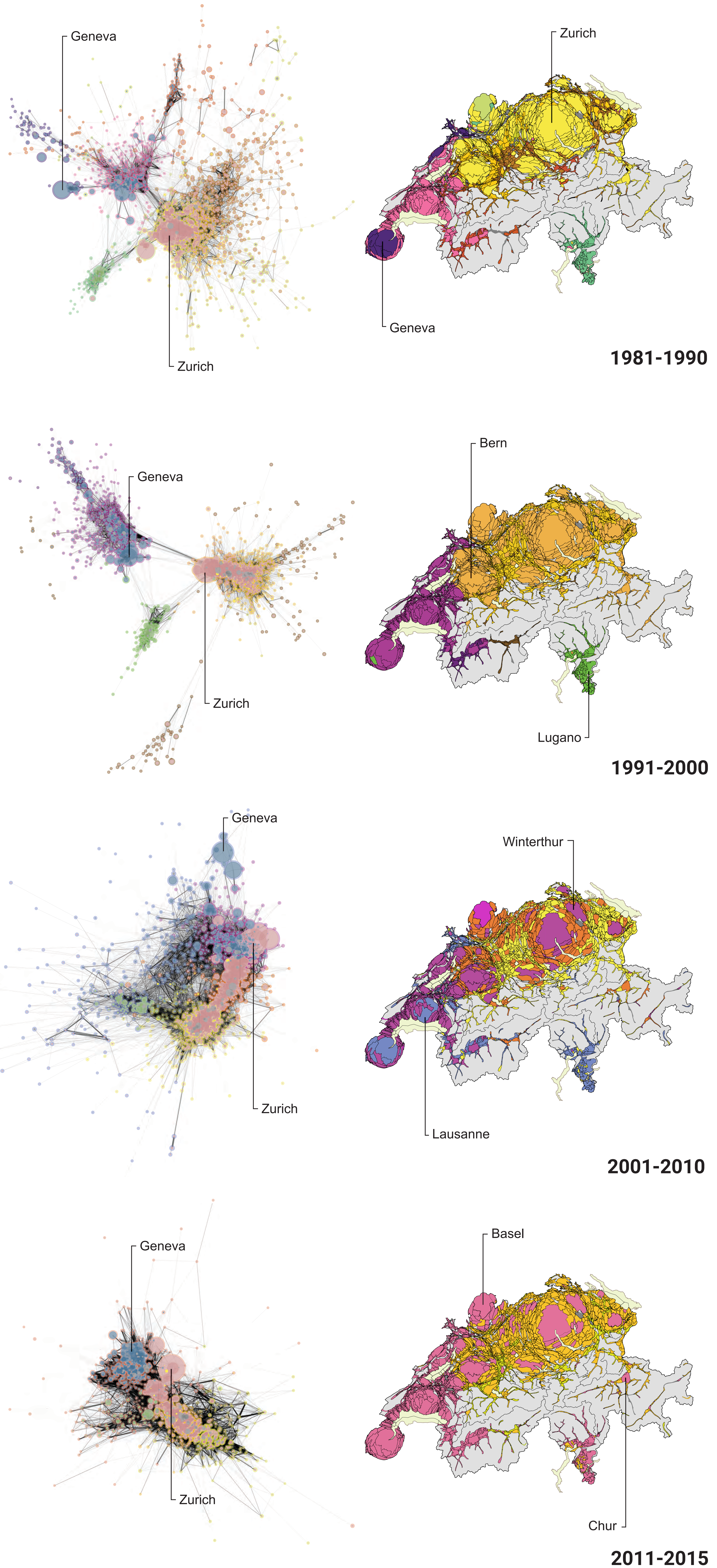
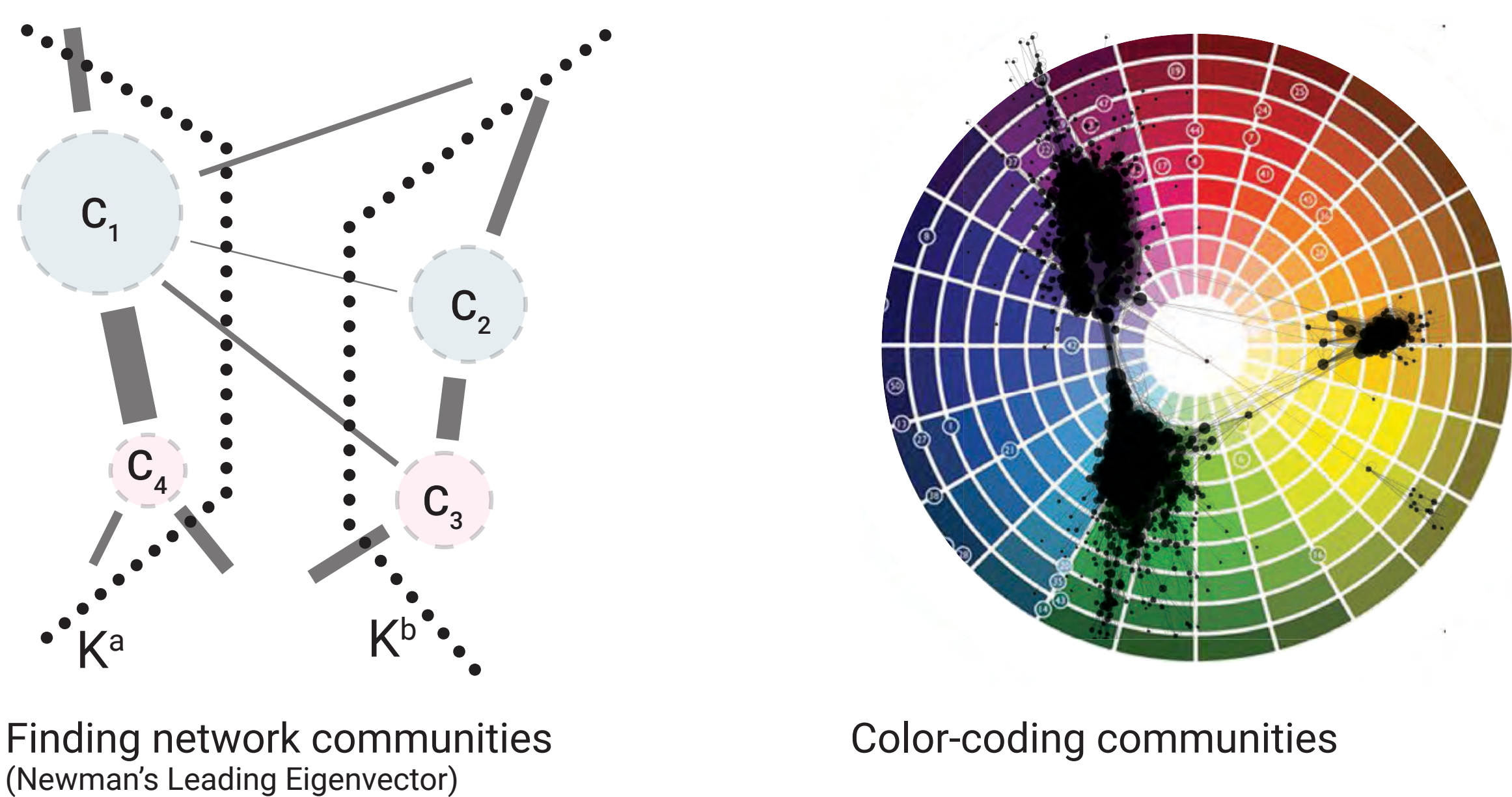
## DATA: Municipal vote outcomes, 1981-2015



## METHOD I : Political agreement/disagreement



## METHOD II : Topological network clustering



## Credits and references

Koseki, S. A. (2017). “Moral Matrices: Space Through the Unfolding of Direct Democracy in Switzerland”, Doctoral Dissertation. Lausanne: École polytechnique fédérale de Lausanne, pp. xiv-319.

Koseki, S. A. (2017). “Matrices morales: Espaces géographiques de la démocratie directe en Suisse.” In: *Géoagenda*, vol. 9, pp. 167-9.

Koseki, S. A. [under review]. “The Geographic Evolution of Political Communities in Switzerland: From Municipal Vote Outcomes to Topological Regions.” In: *PLoS ONE*.

This research has been carried out with the support of EPFL and the Swiss National Foundation Doctoral Mobility Fellowship, the National University of Singapore's Department of Geography, the University of Oxford's School of Anthropology and the ETH Zurich Future Cities Center.

Design, research, maps and graphs by Shin Alexandre Koseki  
Differentiated cartogram base maps by EPFL-Chôros

