Why do people change their language?

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When people gradually stop speaking one language and adopt another, this process is called language shift or language spread: the space where the "old" language is used becomes smaller and smaller over time as it is replaced by the "new" language (see Figure 1). The spread of the new language may be regarded as a diffusion process, where the movement of languages may be compared to the movement of atoms [1]. Ultimately, language shift may even lead to the "death" of a language when no-one uses it anymore at all.
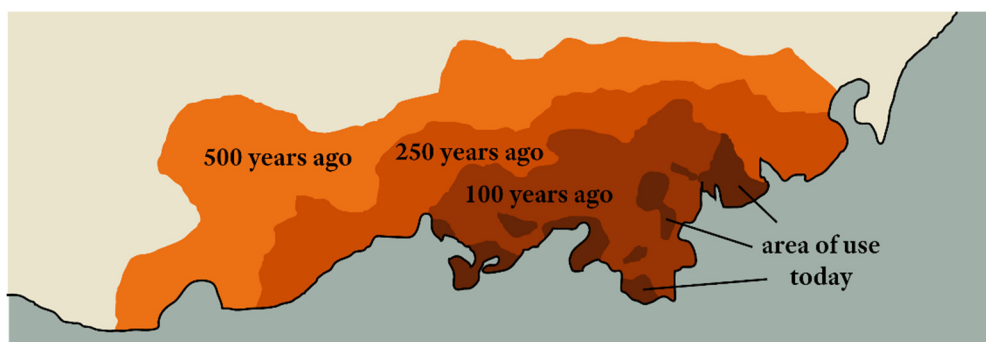

Figure 1: Schematic representation of language shift: as people stop using the language, the area of use of the language shrinks over time, resulting in dispersed "language islands" in the last timestep.

In the past few years, computer simulations and mathematical models have been introduced as tools to study language shift. These techniques allow us to track the development of languages over time and space, and can help recognize trends on a large scale – given that we have enough high-resolution data.

In this talk, we will give an overview on how to use mathematical models inspired by physics to model language shift, using concrete examples. We will look at language shift from two perspectives: macroscopically (looking at the whole population of a country) and microscopically (looking at individual people and villages). On the basis of empirical data from scenarios such as one of the many language contact areas in the former Austria-Hungary [2], we show how mathematical modelling can help us better understand why people change their language from one to another.

References

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