Geographic Data Science

Space, formally

Dani Arribas-Bel

Space, formally

For a statistical method to be **explicitly spatial**, it needs to contain some representation of the geography, or **spatial context**

One of the most common ways is through **Spatial Weights Matrices**

- **(Geo)Visualization**: translating numbers into a (visual) language that the human brain *"speaks better"*
- **Spatial Weights Matrices**: translating geography into a (numerical) language that a computer *"speaks better"*.

Core element in several spatial analysis techniques:

- Spatial autocorrelation
- Spatial clustering / geodemographics
- Spatial regression

W as a formal representation of space

W

N x N positive matrix that contains ***spatial relations*** *between all the observations in the sample*

$w_{ii} = 0$ by convention

…What is a ***neighbor****???*