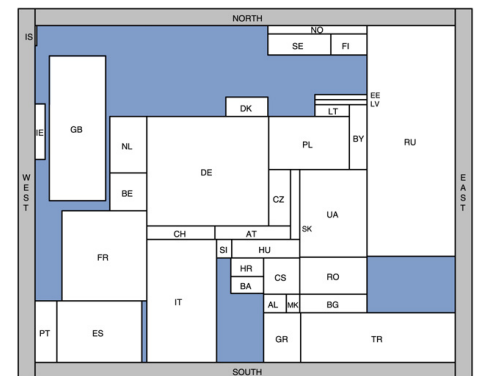
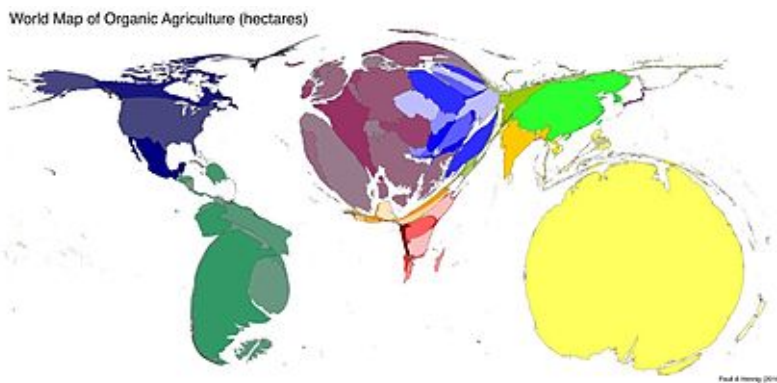


Algorithm for Map-looking Topological Cartograms

Cartograms are maps in which areas of geographic regions, such as countries and states, appear in proportion to some variable of interest, such as population or income. Most often a cartogram is generated from a geographic map by distorting the country sizes (left figure). In contrast, a *topological* cartogram is generated from an abstract vertex-weighted planar graph, that represents the so-called dual graph of the cartogram (right figure).

The goals of the thesis are: –to design an algorithm that constructs a topological cartogram which has “natural” map-looking shapes (bottom figure) and several additional properties; –to implement the algorithm; and –to evaluate its effectiveness with respect to an algorithm from the state of the art.



A cartogram generated from world map.
Paul & Hennig 2016

A topological rectangular cartogram.
Van Kreveld & Speckmann 2004.



A hand drawn map-looking topological cartogram. Von Schmettow 2017.

Requirements:

Obligatory:

- Good programming skills
- Lectures Algorithms 1 and 2

Desirable:

- Algorithm Engineering
- Computational Geometry

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Notes:

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