Adjacent Point Mapping Methods: Web Mapping Approach

Rex Cammack

University of Nebraska Omaha - rcammack@unomaha.edu

Keywords: Adjacency, Web Mapping, Animation

Abstract:

Cartographers view positional accuracy as a top priority. Yet in many cases the cartographer must forego positional accuracy for the sake of making a map that is useable for the map reader. This is the classic paradox for scale and generalization, Robinson (1952). In addition to generalization and scale, cartographers have worked with mutating map element positions as a visual variable through the method of cartograms, Tobler (2004), Shimizu and Inoue (2009). Tobler (2004) provided a detailed review of methods of area cartograms while the work of Shimizu and Inoue (2009) focused on linear cartograms. In this research the focus is similar to cartograms, but instead of areas and linear structure this research looks at adjacency of point locations. In looking at this research one could refer to the method as point cartograms, however this research is more at the beginning so the term adjacent point mapping is the working term used here.

The goal of this research is to build and test several approaches to reposition point locations to derive the relative positional association of geographic point locations. As a research project that is ongoing the current approaches being examined are GIS modelling, Planar vector, and dynamic aggregation. Along with computational methods this research also includes methods of cartographic display of results. Web mapping displays include both the end result of the computations and also an animated presentation of the original point positions morphed into the adjacent point mapping representation.

The result of this research is the computational methods of the adjacent point mapping for three types of approaches and the method to animate the positional location of the points. The animated methods will be compared between a Web Mapping services approach and computational approach. With the results of this research, the cartographic community can start improving the method of adjacency representation and how the method communicates the nature of positional location to the map user.

References

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