

Abstract

This work deals with the automated creation of tessellation-based planar cartographic cartogram, otherwise known as mosaic cartogram. Its principle is based on geometric transformation of the mapped area according to selected quantitative data into a regular grid of selected tile shape. Based on a conversion parameter, which determines the value of a quantitative variable for one tile, each input territory is assigned a corresponding number of tiles, thus enlarging or shrinking the territory.

The theoretical part is devoted to plane tessellations and thematic cartography, specifically the introduction of cartographic cartogram, available tools for its creation and the definition of cartographic error. It also introduces an existing tool for automated mosaic cartogram creation and other types of maps and the procedures used for algorithm design in this work. The next section is devoted to the aspects that the resulting map should satisfy and the metrics for their evaluation. Furthermore, the input data requirements and other necessary theoretical foundations, namely mathematical morphology and object-oriented programming, are presented. The practical part then describes the proposed algorithm for automated mosaic cartogram generation and its implementation and testing over real data.

Key words

mosaic cartogram, tessellations, thematic cartography