Algorithm for automated building simplification using aggregation

Abstract

Diploma thesis deals with automated cartographic generalization. The main aim is to propose a new generalization algorithm for building aggregation.

The first part brings summary of existing algorithms for building aggregation. Then the new algorithm is presented: at first, auxiliary data structures and algorithms are presented, then cartographic and geometric requirements are defined.

New algorithm is based on the principle of straight skeleton construction. Outer vertices are removed from constructed straight skeletons and those structures are aggregated. The aggregated polygon is reconstructed from aggregated structures.

The second part is focused on implementation and results evaluation. The algorithm is implemented using open-source libraries CGAL, Boost and Shapelib. The results and confrontation with SW ArcGIS are discussed in conclusion of the thesis.