








Supplementary Material for “ClusterSets: Optimizing Planar Clusters in Categorical Point Data”

Jakob Geiger¹ , Sabine Cornelsen² , Jan-Henrik Haurert³ , Philipp Kindermann^{1,4} ,
Tamara Mchedlidze⁵ , Martin Nöllenburg⁶ , Yoshio Okamoto⁷ , and Alexander Wolff¹ 

¹ Universität Würzburg, Würzburg, Germany

² University of Konstanz, Konstanz, Germany

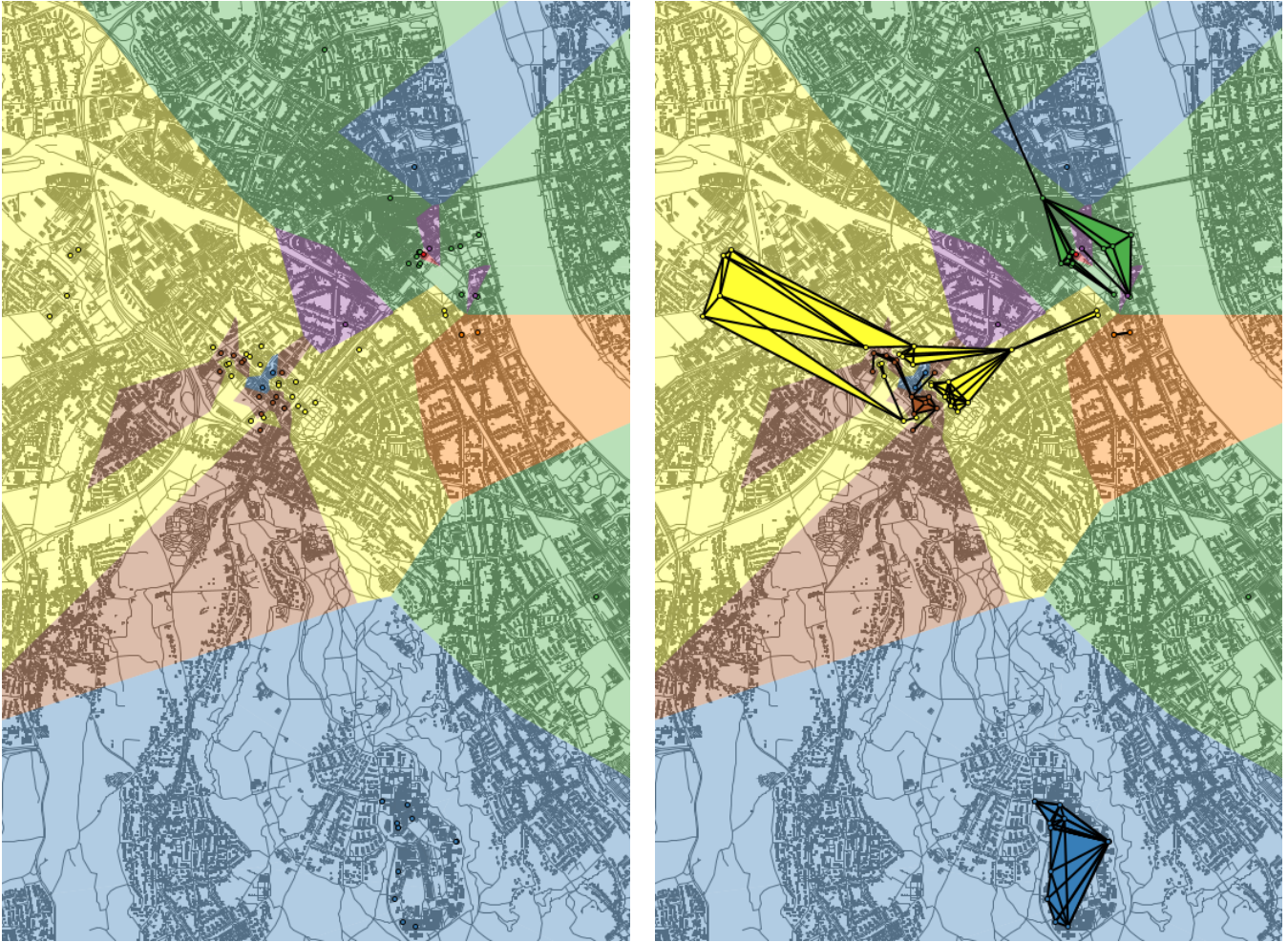
³ University of Bonn, Bonn, Germany

⁴ Universität Trier, Trier, Germany

⁵ Utrecht University, Utrecht, The Netherlands

⁶ TU Wien, Vienna, Austria

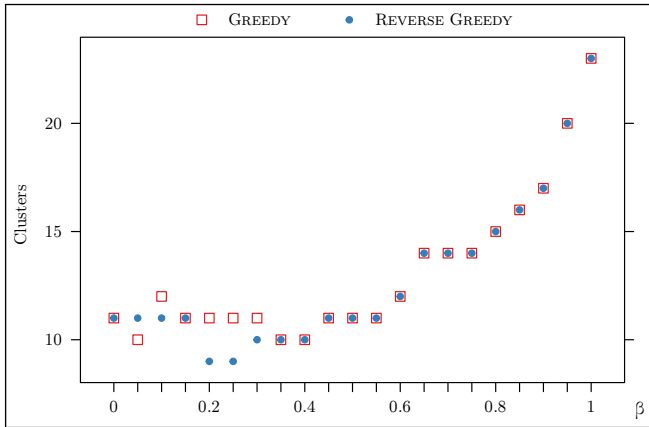
⁷ University of Electro-Communications, Tokyo, Japan



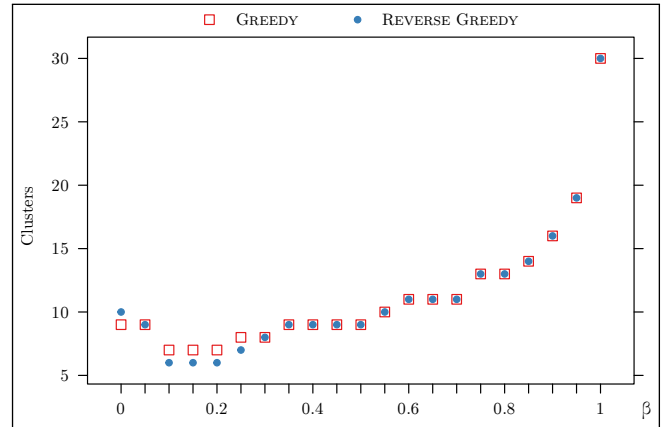
(a) Voronoi diagram with Voronoi cells colored with same hues as corresponding points.

(b) Edges defining clusters as selected by our greedy heuristic, together with a line Voronoi diagram of selected edges as well as polygonal representations of clusters.

Figure 1: Facilities of the University of Bonn, where colors of points reflect department memberships

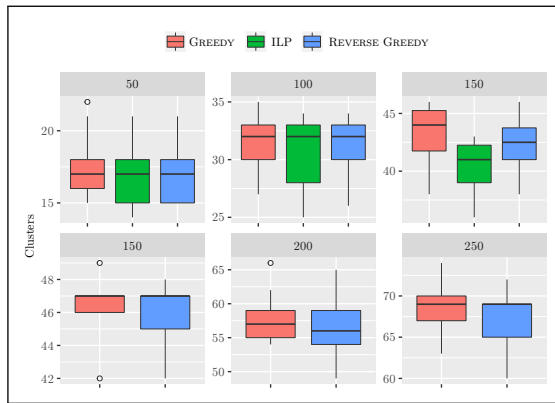


(a) UBN

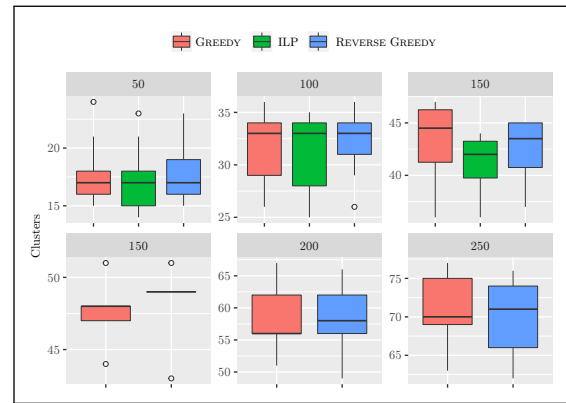


(b) NYC

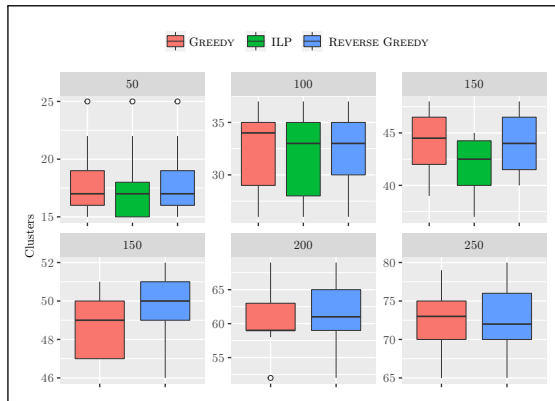
Figure 2: Influence of β on the number of clusters produced by GREEDY and REVERSEGREEDY for the data sets UBN and NYC.



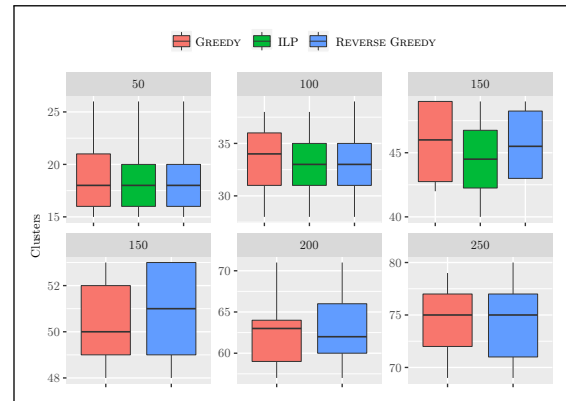
(a) $\beta = 0.55$



(b) $\beta = 0.6$



(c) $\beta = 0.65$



(d) $\beta = 0.7$

Figure 3: Comparison of solutions for different values of β . The y-axis counts the number of clusters in the solutions. In the top row we show the instances for which we found an optimum solution with the ILP, and in the bottom row we show those where we did not find an optimum solution.

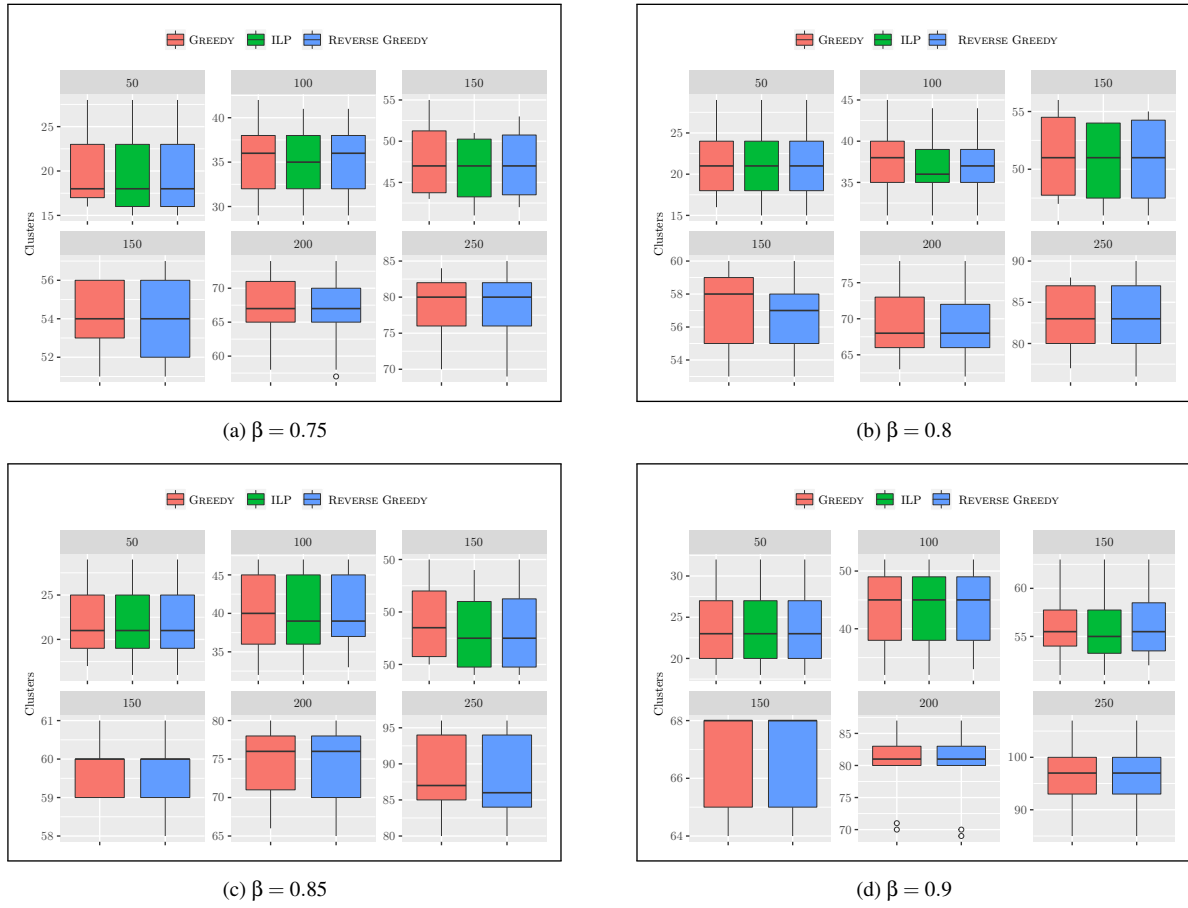


Figure 4: Comparison of solutions for different values of β . The y-axis counts the number of clusters in the solutions. In the top row we show the instances for which we found an optimum solution with the ILP, and in the bottom row we show those where we did not find an optimum solution.