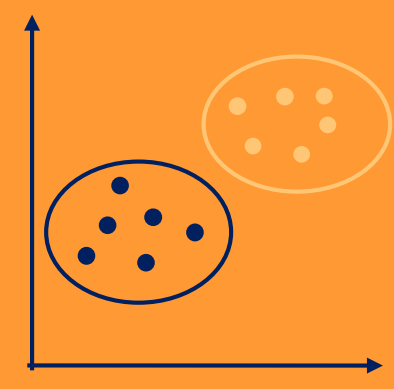
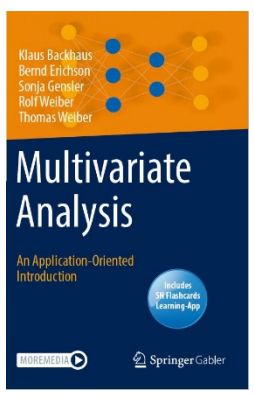
Cluster Analysis



Main research question	Can different objects be grouped into homogeneous groups (clusters)?
Example	Formation of personality types based on psychographic characteristics.
Type of analysis	Structure-Discovering method
Measurement level of the variables	All types of scale levels (nominal, ordinal, metric) (No distinction between dependent and independent variables)
Recommendations	▪ In a first step, Apply the single-linkage method (nearest neighbor) to identify outliers. ▪ Eliminate outliers and subsequently apply another agglomerative procedure (e.g. Ward's method) to the reduced data set. ▪ Optimize the clustering solution by using the k-means method. ▪ Assess the robustness of the clustering solution. ▪ Possibly apply discriminant analysis to the cluster solution to analyze distinguishing features of the clusters.
Keywords	Agglomeration schedule, Average linkage, Calinski & Harabasz rule, Centroid clustering, City block metric (l1-norm), Complete linkage, Dendrogram, Distance measures, Elbow criterion, Euclidean distance (L2-norm), Jaccard coefficient, K-means, Median clustering, Minkowski metric (L-norms), Single linkage, Outliers, Phi-square statistic, Proximity measures, Russel and Rao coefficient, Scree plot, Similarity measures, Simple matching coefficient, Test of Mojena, Two-step clustering, variance criterion, Ward's method



Backhaus, Klaus; Erichson, Bernd; Gensler, Sonja; Weiber, Rolf; Weiber, Thomas (2021)
Multivariate Analysis – An Application-oriented Introduction, Springer: Berlin

www.multivariate-methods.info