

Statistics 579
Applied Multivariate Methods

Exam 3

You are to perform a set of cluster analyses, using the data in Appendix C of your textbook, on the variables corresponding to the Family Adaptability Cohesion Evaluation Scale. The three clustering methods to be used are Average Linkage, Complete Linkage, and Ward's Method. There is no need to standardize these data for any of the analyses.

1. Produce a 3-D scatter plot of the first three principal components, and visually determine the number of clusters. (Note that this may or may not be the number you ultimately choose below.)
2. Using each of these 3 clustering methods, do a cluster analysis of these data, and produced the corresponding dendrogram. Use the pseudo T^2 statistic to help determine the number of clusters. (Note that the three methods may produce very different results.) Determine the number of clusters for each method.
3. For each of the 3 clustering methods, produce a 3-D scatter plot of the first three principal components, and annotate each point with the cluster number. Do the clusters appear reasonable? Why?