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Title: Simple graphical and numerical summaries of association for contingency tables

Abstract: Determining the strength of the association between variables that are cross-classified to form a contingency table is an important aspect in many disciplines. The Pearson chi-squared test of independence is commonly taught in many undergraduate courses to identify whether there exists a statistically significant association between two categorical variables (although very rarely are more than two variables considered). However, when this test concludes that there is evidence that an association exists, identifying how the variables are associated is very rarely explored.

I will provide a very simple overview of some of the fundamental statistical tools that may be used to explore how categorical variables are associated. Attention will be paid to correspondence analysis (for visualising the nature of the association in a low-dimensional subspace) and the role measures of symmetric and asymmetric association structures have for such an analysis. We shall consider these two issues by first analysing the association structure between two categorical variables and extending them for the analysis of multiple categorical variables.