Chapter 1

First chapter

1.1 Exercises

Exercise 1.1 The data set *UCBAdmissions* is a 3-way table of frequencies classified by `Admit`, `Gender`, and `Dept`.

(a) Find the total number of cases contained in this table.
(b) For each department, find the total number of applicants.
(c) For each department, find the overall proportion of applicants who were admitted.
(d) Construct a tabular display of department (rows) and gender (columns), showing the proportion of applicants in each cell who were admitted relative to the total applicants in that cell.

Exercise 1.2 The data set *DanishWelfare* in `vcd` (`?`) gives a 4-way, $3 \times 4 \times 3 \times 5$ table as a data frame in frequency form, containing the variable `Freq` and four factors, `Alcohol`, `Income`, `Status`, and `Urban`. The variable `Alcohol` can be considered as the response variable, and the others as possible predictors.

(a) Find the total number of cases represented in this table.
(b) In this form, the variables `Alcohol` and `Income` should arguably be considered *ordered* factors. Change them to make them ordered.
(c) Convert this data frame to table form, `DanishWelfare.tab`, a 4-way array containing the frequencies with appropriate variable names and level names.
(d) The variable `Urban` has 5 categories. Find the total frequencies in each of these. How would you collapse the table to have only two categories, `City`, `Non-city`?
(e) Use `structable()` or `ftable()` to produce a pleasing flattened display of the frequencies in the 4-way table. Choose the variables used as row and column variables to make it easier to compare levels of `Alcohol` across the other factors.