Martin Losert and Katharina Naumann
Research Methods and
Mathematical Psychology

Department of Psychology
University of Tuebingen

Problems in R

Graphics

a) Load the built-in data set `cars`. Find out about the data with `?cars`. Create a scatter plot of "Distance" as a function of "Speed." Adjust the size of the margins (`mai`) and the spacing between labels and axes (`mgp`). Set `type = "n"` and `axes = FALSE` and create the plot from scratch, step by step adding `points()`, `axis()`, `legend()`, etc.

   Export the plot to an eps, wmf, or pdf file. All labels should be readable, so reduce `width` and `height` of the output device.

b) Load Vocabulary.txt into R again. Make a scatter plot of "score in vocabulary test" as a function of "years of education" Set `pch = "."` and use the `jitter()` function to actually see the structure in the data.

   Add the mean vocabulary score for each year of education to your plot. Use `aggregate()` or `tapply()` to get these means. Add the standard errors (`arrows()`).

   Export the plot to a file. Play with the graphical parameters. The goal is a publication-ready figure.

c) Find out if there are sex differences in the relationship of "years of education" and "score in vocabulary test," and if these differences depend on the year the test was taken in. Load the `lattice` package and use the `xyplot()` function. Hint: Make one scatter plot for each year of education with one regression line for men and one for women.