Week 8: Discussion

David Diez

Hypothesis test phrasing :: In a hypothesis test, there is H_0 and H_A and we wish to test at a level α. We take our sample, compute a test statistic, and find the p-value. Then, there are two "actions" that are possible, depending on the relation of the p-value and α:

- Because the $p - value < \alpha$, we reject H_0. That is, our sample provides evidence that [state H_A in context].
- Because the $p - value \geq \alpha$, we do not reject H_0 (could also phrase as "fail to reject H_0"). That is, our sample does not provide evidence that [state H_A in context].

Above, the "action" is using the p-value to decide whether we reject H_0 or fail to reject, then this action is put into context.

Hand back and review exam 2 ::

Regression basics :: To discuss...

- looking at scatterplots,
- fitting a line to the scatterplot, and
- residuals.

Our regression assumptions ::

- Linearity — the fit must be linear (non-linear fits are beyond this course's scope)
- Independence — each observation must be independent of the others
- Equal variance & normality — it is assumed that the residuals are from a normal distribution with constant variance

Sample scatterplots :: how some issues will look:

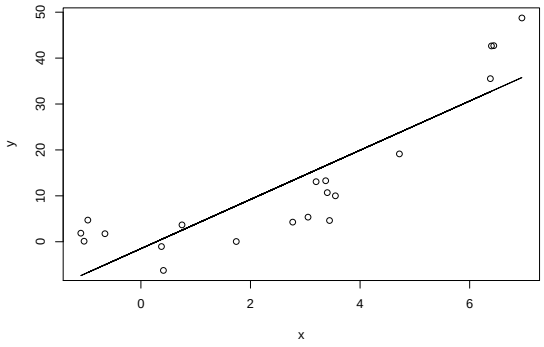

Figure 1: not a straight line – there is some curvature.

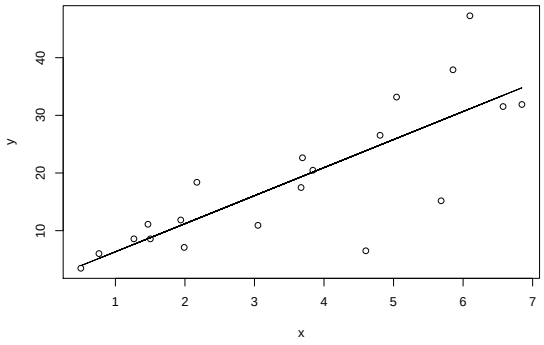

Figure 2: non-constant variance.