

Dental Data

See Chapter 2, #26, for a description of this data set.

The data is available at

<http://rem.ph.ucla.edu/rob/mld/data/tabdelimiteddata/dental.txt>

1. Create a profile plot of the dental data, making separate plots for the boys and the girls. Briefly report your findings. What's the overall pattern? Are boys and girls different? In what ways?
2. Calculate averages for each child, and plot them, distinguishing boys from girls. Is there a visual difference between the groups? Perform a reasonable simple analysis and report your results.
3. Calculate the standard error of the averages for each child (that is, for each child separately), and plot, distinguishing by gender. Does the standard error seem to differ by gender? How does that cast doubt on your previous result?
4. Repeat parts 2 and 3 for the slope for each child. (You can get the standard errors of estimates from a linear model `m` using `coef(summary(m))[,2]`).
5. Compare your results from parts 2, 3, and 4 to the picture from part 1. Which analyses show more about the data?

Missing Data

- Please answer Chapter 4, problem 2, parts a–e.

The data (with different missingness) is available at

<http://rem.ph.ucla.edu/rob/mld/data/tabdelimiteddata/missingdata1.txt>

<http://rem.ph.ucla.edu/rob/mld/data/tabdelimiteddata/missingdata2.txt>

<http://rem.ph.ucla.edu/rob/mld/data/tabdelimiteddata/missingdata3.txt>

Here's one way to get the last observation for each subject:

```
md2 <- read.delim("http://rem.ph.ucla.edu/rob/mld/data/tabdelimiteddata/missingdata2.txt")
md2c <- cast(md2, idno~week, value="weight")
md2c$last <- apply(md2c[2:7],1,function(x) x[max(which(!is.na(x))]))
```