Today

- Coding likelihood intervals
- McElreath problem set

Reproducible workflow

1. Document everything
2. Do (almost) everything using code
3. Use open source software & file formats
4. Organize files in one location
5. Track changes to files
6. Archive final working versions
7. Backup all files

Markdown editors

- Rstudio
- VSCode - Microsoft
- VSCodium – version with no telemetry

Notation (equivalent variants)

$$L(\theta) = \mathcal{L} = \boxed{P(y \mid \theta)}$$

Probability of the data given the model parameters

"The likelihood of the model is the probability of the data given the model"

The following is equivalent:

$$L(y ; \theta) = \boxed{P(y \mid \theta)}$$

Notice that we use a semicolon or comma here rather than a vertical bar

"The likelihood function is the probability of the data given the model"

Sometimes you may see it this way (e.g. Edwards 1992. "Likelihood".):

$$L(\theta \mid y) = \boxed{P(y \mid \theta)}$$

"The likelihood of the model given the data ..."

The vertical bar is the conditional operator.

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Hilborn and Mangel (1997) and some other places in ecology/evolution:

$$L(y \mid \theta) = \boxed{P(y \mid \theta)}$$

This is probably not technically correct.

But DON'T read it thus "The likelihood of the data given the model ..."

Coding likelihood intervals

- Do it for your data
- Code at end of 06_3_likelihood_inference.Rmd