**Agenda Part II**

* Vectorization
  + Many functions take vector input and return single object
  + Sometimes you want to apply function to **each element** of vector
  + First Step: Manually
  + Second Step: for-Loop
    - Typical way in many languages
    - Problem: High-level language, Loop not happening on lower level
  + Third Step: Vectorization
    - Automated application to each element “in parallel” (not really)
    - Loop happening on lower level
* Built-in vectorization
* Vectorize own functions: Vectorize()
  + Example: plot marginal likelihood?
  + Exercise?
* apply() family
  + Basic idea and prerequisites (function)
  + apply, lapply/sapply, mapply, tapply, replicate
* The powerful sister: plyr-Package
  + Logic (great!) **I**nput**O**utput**ply**
  + Examples
  + Exercises?

If Vectorization fails: Rcpp

* + Example. Power analysis for binomial test
  + Exercise?