RMakr: An R Interface to MARK
(MARK Analysis for the R afficianado’s)
What RMark Does

- RMark is a R package that provides an interface to MARK

- RMark is a formula-driven interface for building models for MARK rather than creating PIMS and Design Matrices (DMs) manually in the MARK graphical user interface.

- RMark does not fit models to data! It only builds models for MARK. MARK does the computation and model fitting.
MARK and RMark = Playing Nicely Together

- Data Formatting/Data Import
- Creating the Data
- Manipulation the Data
- Evaluating the Data
- Extracting and Interpreting the Data
Why Use RMark Interface?

1. Formula-driven interface: can simplify model creation
2. Scripting & .ddl manipulation support
3. Simplifies analysis and reporting of monitoring datasets!
4. PIM simplification—often overlooked but significantly important
5. MARK output as R objects: further manipulation and use
6. Documentation creation within R
7. It’s fun to annoy Evan.
Data Entry

- `convert.inp()`
  - Turn MARK input files into RMark files
- `read.csv()`
  - Turn Excel (which sucks) or .csv (which does not) into MARK-usable files
Processing Data
Creating Design Data

- `make.design.data()`
  - One of the workhorse functions in RMark in that this creates the design data list.
  - Allows you to develop 'groups' based on age, time, or cohort using `add.design.data()`
  - Also, allows one to incorporate new design data using `merge_design.covariates`
If you understand how design matrices work
  Meaning you have a solid background in MARK and 'get' the MARKBOOK

Each model has a parameter list (model.parameters) which define what constraints you want to put on parameters.

Uses the R function model.matrix to build the design matrix for MARK.
MARK Output as R Objects

- MARK output is now within R as a R object
  - Flexibility for doing quite a few different things
    - Real parameters over covariate range
    - Plot creation
  - Export to MARK for further analysis (bootstrapping, VC)
Data/Metadata Archiving

- MARK output as a \texttt{R} as a \texttt{R} object
  - Allows folks to build \texttt{R} data style packages
    - Container
    - Code documentation
    - Metadata archiving
    - Reproducibility (or just remembering what you did!)