Using knitr with Multilevel Models and Decision Support Trees

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Outline

- `Markdown` & `R Markdown` (brief)
- `knitr` in brief
- `knitr` and `R Markdown` with RStudio options
- Demonstration

Markdown & R Markdown (very brief)

Markdown

- It is a particular type of markup language (simple formatting syntax for authoring HTML, PDF, and MS Word documents from plain text format).
- For example, ***LaTeX*** which is restricted to only PDF output & has greater learning curve
- Other tools such as **Pandoc** to render markdown document to other formats (HTML/Word/PDF)
- THERE ARE WAYS AROUND, BUT ??

Markdown & R Markdown (very brief) contd.

R Markdown

- It is a file format for making dynamic documents with R with `rmarkdown` package.
- R Markdown document is written in markdown and enables execution of embedded R code chunks
- `rmarkdown` comes with the RStudio IDE
- `rmarkdown` and `pandoc` can be used outside of RStudio too. For e.g., rmarkdown::render()

R Markdown Basics

```
Plain text
End a line with two spaces to start a new paragraph.

*italic*   _italics_
**bold**    __bold__

# Header 1
## Header 2
### Header 3

Inline equation: $A = \pi*r^{2}$

Unordered list
* item 1
* item 2
        + sub-item 1
        + sub-item 2
Inline code includes `r 2 + 2`.
```

knitr for reproducible research (author:Dr. Yihui Xie)

knitr + markdown + pandoc = rmarkdown

- COOL R MARKDOWN & knitr
- `knitr` is a package for producing reproducible documents and reports
- Code and text can be embeded
- Runs R code and includes the output (`knit` function from `knitr` package)
- `knitr` and `pandoc` used to work separately

knitr and R Markdown wth RStudio

knitr code chunk options

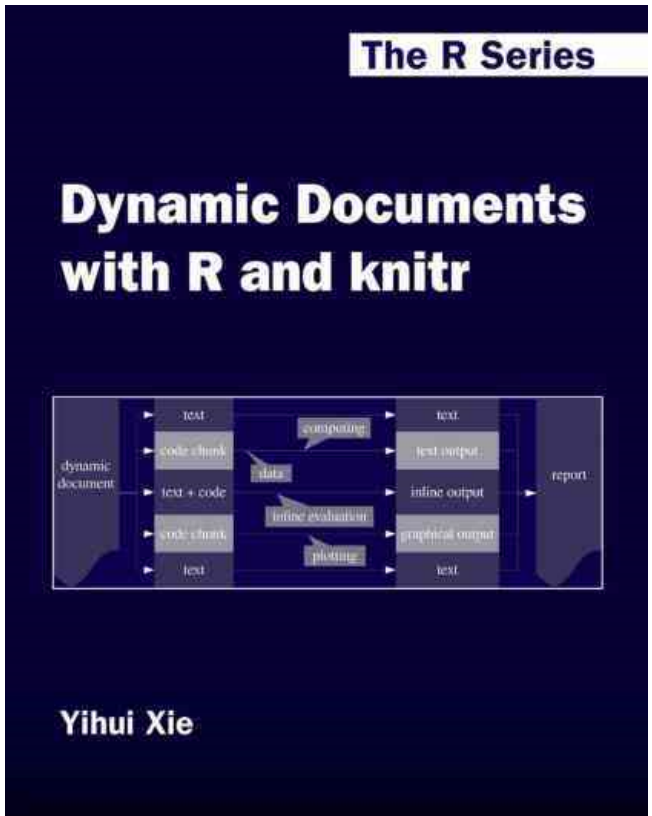
Here is an example of knitr code chunk in .Rmd;

````
```{r echo=TRUE, eval=FALSE}
summary(mtcars)
```
````

- echo: show codes?
- eval: evaluate?
- warning/message/error: show/stop?
- results: markup/hide/asis?
- tidy: reformat codes?
- cache: cache results?
- fig.width and fig.height: figure options
- include: chunk results in the output?

Resources

1. knitr reference card
2. R markdown and knitr cheatsheet
3. R markdown webpage
4. Using R markdown
5. A similar approach that uses an R file underneath the Rmd file (discussed in May)



Let's see some demostrations