A LaTeX Workflow for MSDS

An easy way to quickly get something nice to turn in

by

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  - Figures and tables
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- Control issues
  - Ligatures
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Using LaTeX

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- Templates!

Reproducible Research Using LaTeX

A Workflow Using knitr and LaTeX

- .Rnw file extension

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- .Rnw $\rightarrow$ .tex $\rightarrow$ .pdf

Chunks

Chunk name and options are defined by '« chunk name and options» ' , followed by '=', then your code is included, then the chunk is punctuated with an '@'.

Making tables with knitr

To make a table, you say chunk results='asis', and print an xtable

Making tables with knitr | Example

```
WheatEater<- read.csv("Data/Wheateater.csv")
model1 <-lm(Tcell Mass,data=WheatEater)
table1<-xtable(model1, label='tb:model1',
caption="Results of the Model")
print(table1,booktabs=T,table.placement='H')
```

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.0875	0.0787	1.11	0.2800
Mass	0.0328	0.0106	3.08	0.0061

Results of the Model

Making figures with knitr

To make a beautiful figure, you set your device to tikz (dev='tikz'), which produces an amazing, non-rasterized figure. Note on the first run through, this can take a while, which is why we cache our output.

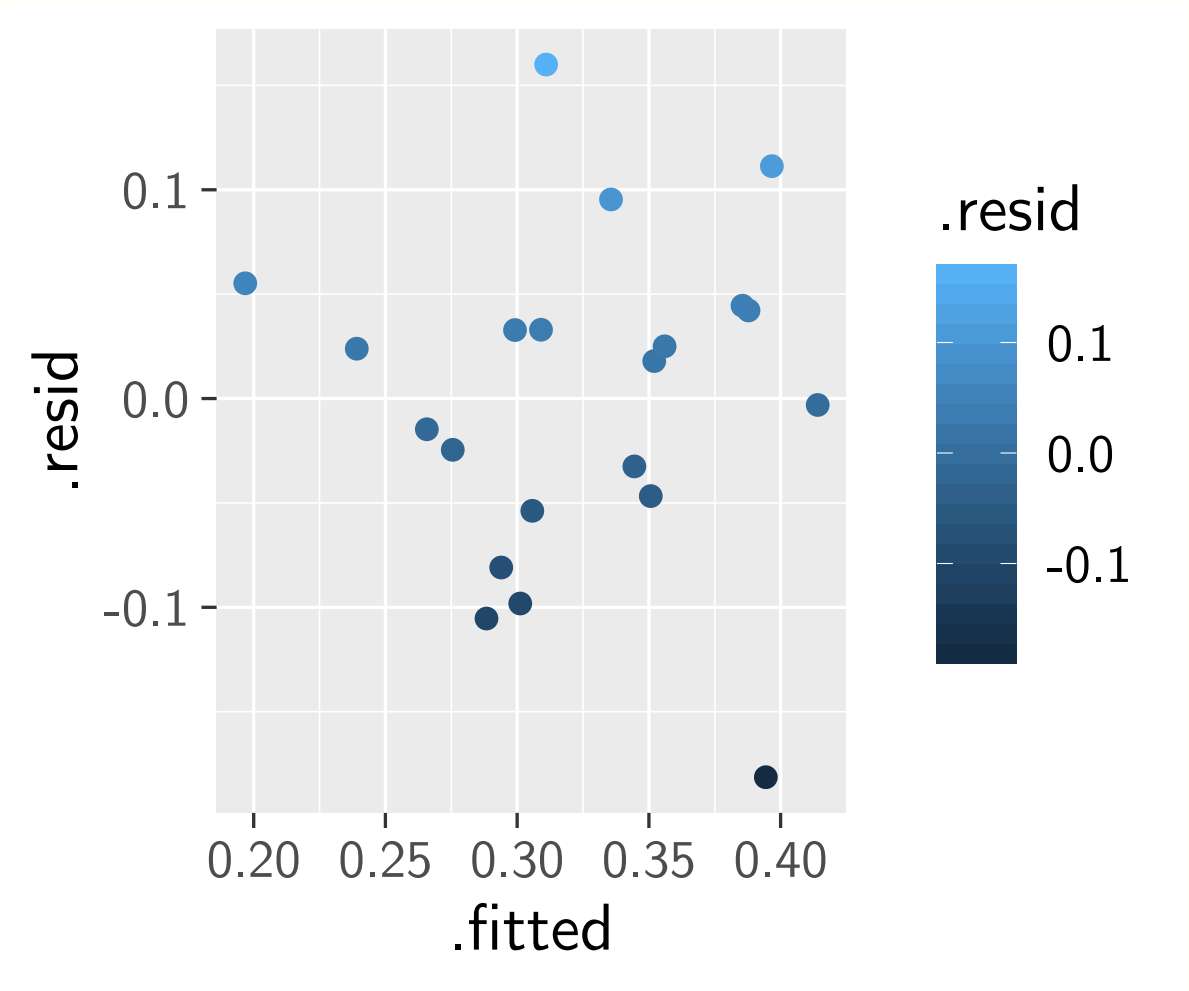
Making figures with knitr | Example

```
resp<-ggplot(model1, aes(.fitted,.resid))
```

And so on. The next slide contains just basic ggplot output, but compiled using tikz into the pdf (with a surprise).

Making figures with knitr | Example

An animated plot from ggplot2, in PDF form



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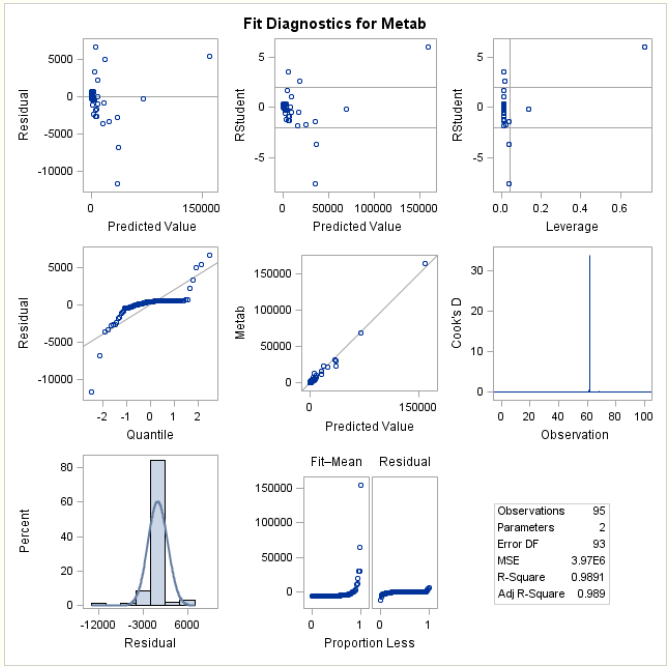
- SAS code does not save between chunks
  - Clever echos

SAS Example

```
proc glm data=powermetabolism plots=all alpha=.05; model
Metab=powerMass / CLPARM; run;
```

SAS Example

Alternatives For SAS University Edition



Diagnostic Plots on the Raw Metabolism Data

Other Languages

Knitr and LaTeX have full support of Python, C++, C, Java, and you can really easily add your own. I know python can be saved across chunks, and works with tikz

Conclusions

Closing Thoughts

- Don't use Word

Closing Thoughts

- Don't use Word
- LaTeXis fun

Questions

Thank you!

Backup slide 1

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.