

# Using the **R Code** and **Git Example** Environments with **knitr**

Alan's Modifications and Notes

November 4, 2015

## 1 Introduction

This is a test of the **R Code** and **Git Example** environments. By the way, this document was last compiled Wednesday, November 04, 2015 - 01:34:21 PM.

### 1.1 Simple Arithmetic

R Code 1.1

```
1 + 1  
  
[1] 2
```

### 1.2 Generate Random Data

R Code 1.2

```
set.seed(13)  
x <- rnorm(100)
```

Find the standard deviation of **x**.

R Code 1.3

```
sd(x) # standard deviation  
  
[1] 0.9508399
```

Note that **R Code** [1.2](#) and [1.3](#) are hyperlinked! The standard deviation of **x** is computed in **R Code** [1.3](#) and is 0.9508399.

### 1.3 Graphs and Environments

#### R Code 1.4

```
set.seed(41)
junk <- rnorm(10000)
MEAN <- mean(junk)
MEAN
[1] 0.006226888
```

The mean of the junk is 0.0062269. Note: It seems that an error is thrown if a code chunk with a graph and `rcode` is executed at the same time. Work around is as shown below. That is, hide the figure when showing the code...then show the figure with a separate code chunk. Note that [Figure 1](#) is hyperlinked!

```
library(ggplot2)
ggplot(data = mtcars) +
  geom_density(aes(x = mpg), fill = "pink") +
  theme_bw() +
  labs(x = "miles per gallon", y = "", title = "\\alpha + \\beta = \\delta")
```

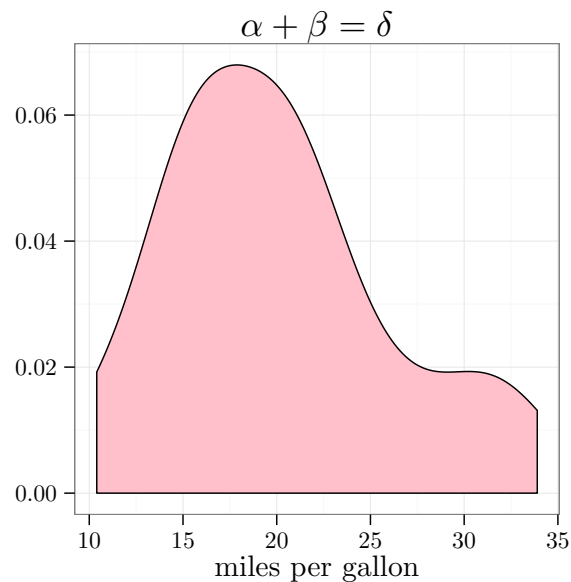


Figure 1: This is where you explain your graph

## 2 Git Stuff

When working with OSX, one may want to change `engine = 'sh'` to `engine = 'bash'`.

### Git Example 2.1

```
git config --list

user.name=Alan Arnholt
user.email=arnholtat@appstate.edu
credential.helper=cache --timeout=10000000
core.repositoryformatversion=0
core.filemode=true
core.bare=false
core.logallrefupdates=true
remote.origin.url=https://github.com/STAT-ATA-ASU/STT5811ClassRepo.git
remote.origin.fetch=+refs/heads/*:refs/remotes/origin/*
branch.master.remote=origin
branch.master.merge=refs/heads/master
```

Look at **R Code 1.1** on [page 1](#) to add `1 + 1` and get the answer 2. The output from **Git Example 2.1** shows how my machine is configured. **Git Example 2.2** shows the log.

### Git Example 2.2

```
git log --pretty=oneline -3

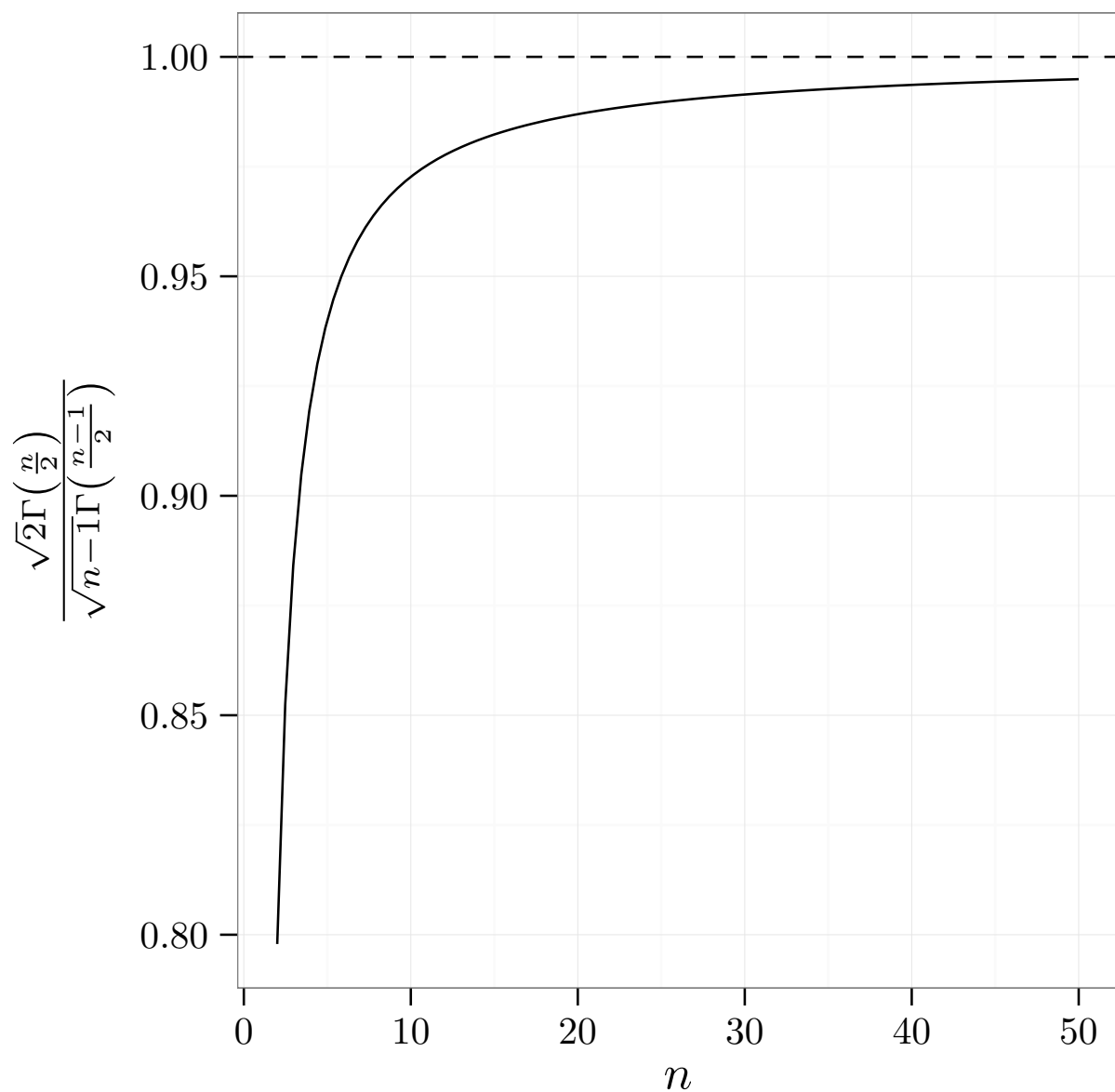
f96e501d4206f17e7ea2255c3844e60e0721ef9a date updates
8f613d9b4e55f5748240cb165bb2c2d32c33365b student stuff
a0e934f7d2a8d706a721ffe4dd0a0c415240a463 ISCAM assignment 8
```

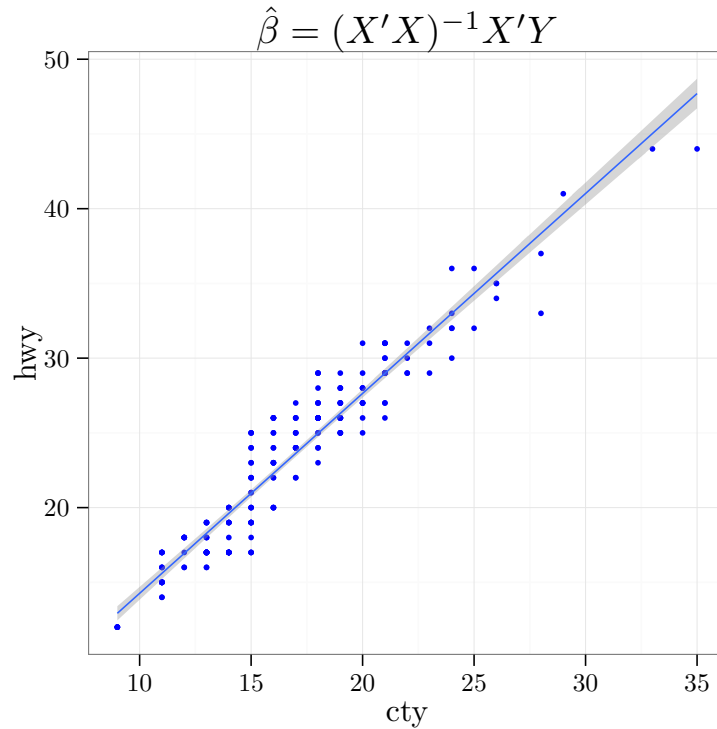
### 3 Using L<sup>A</sup>T<sub>E</sub>X in Graphs

How about some more L<sup>A</sup>T<sub>E</sub>X in a ggplot2 graph.

R Code 3.1

```
f <- function(x){sqrt(2/(x - 1))*gamma(x/2)/gamma((x - 1)/2)}
library(ggplot2)
p <- ggplot(data.frame(x = c(2, 50)), aes(x = x))
p + stat_function(fun = f) +
  labs(x = "$n$", y = "$\\frac{\\sqrt{2}}{\\sqrt{n-1}}\\frac{\\Gamma(\\frac{n}{2})}{\\Gamma(\\frac{n-1}{2})}$") +
  theme_bw() +
  geom_hline(yintercept = 1, lty = "dashed")
```





- R version 3.2.2 (2015-08-14), x86\_64-pc-linux-gnu
- Locale: LC\_CTYPE=en\_US.UTF-8, LC\_NUMERIC=C, LC\_TIME=en\_US.UTF-8, LC\_COLLATE=en\_US.UTF-8, LC\_MONETARY=en\_US.UTF-8, LC\_MESSAGES=en\_US.UTF-8, LC\_PAPER=en\_US.UTF-8, LC\_NAME=C, LC\_ADDRESS=C, LC\_TELEPHONE=C, LC\_MEASUREMENT=en\_US.UTF-8, LC\_IDENTIFICATION=C
- Base packages: base, datasets, graphics, grDevices, methods, stats, utils
- Other packages: ggplot2 1.0.1, knitr 1.11, tikzDevice 0.8.1
- Loaded via a namespace (and not attached): codetools 0.2-14, colorspace 1.2-6, digest 0.6.8, evaluate 0.8, filehash 2.3, formatR 1.2.1, grid 3.2.2, gtable 0.1.2, highr 0.5.1, labeling 0.3, magrittr 1.5, MASS 7.3-44, munsell 0.4.2, plyr 1.8.3, proto 0.3-10, Rcpp 0.12.1, reshape2 1.4.1, scales 0.3.0, stringi 1.0-1, stringr 1.0.0, tools 3.2.2