

Reproducible Research (2)

Camera-Ready plots

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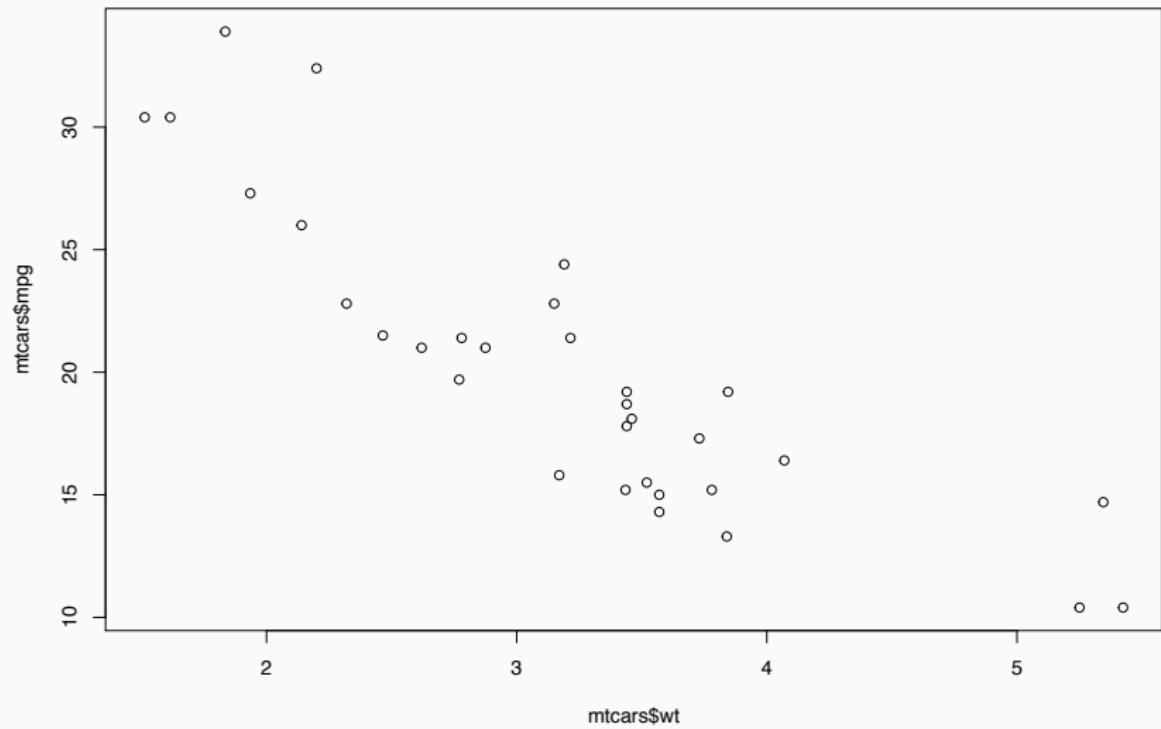
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Github repository

```
git clone https://github.com/strongway/  
seminar-reproducible-research.git
```

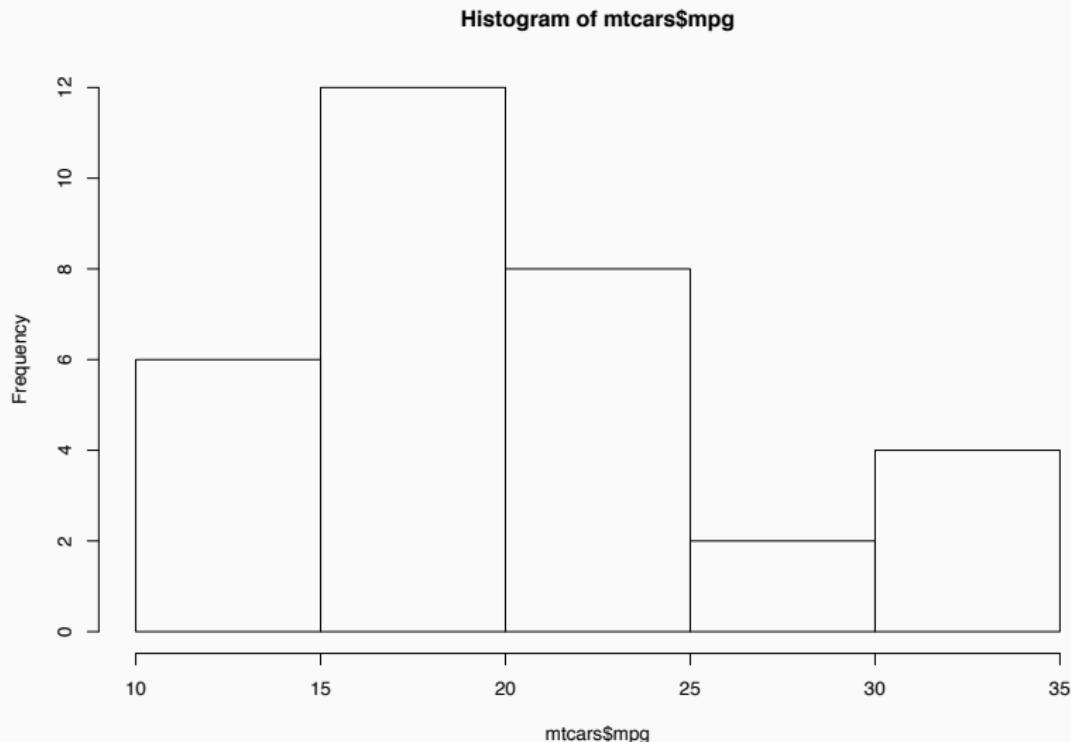
R basic plots

```
plot(mtcars$wt, mtcars$mpg)
```



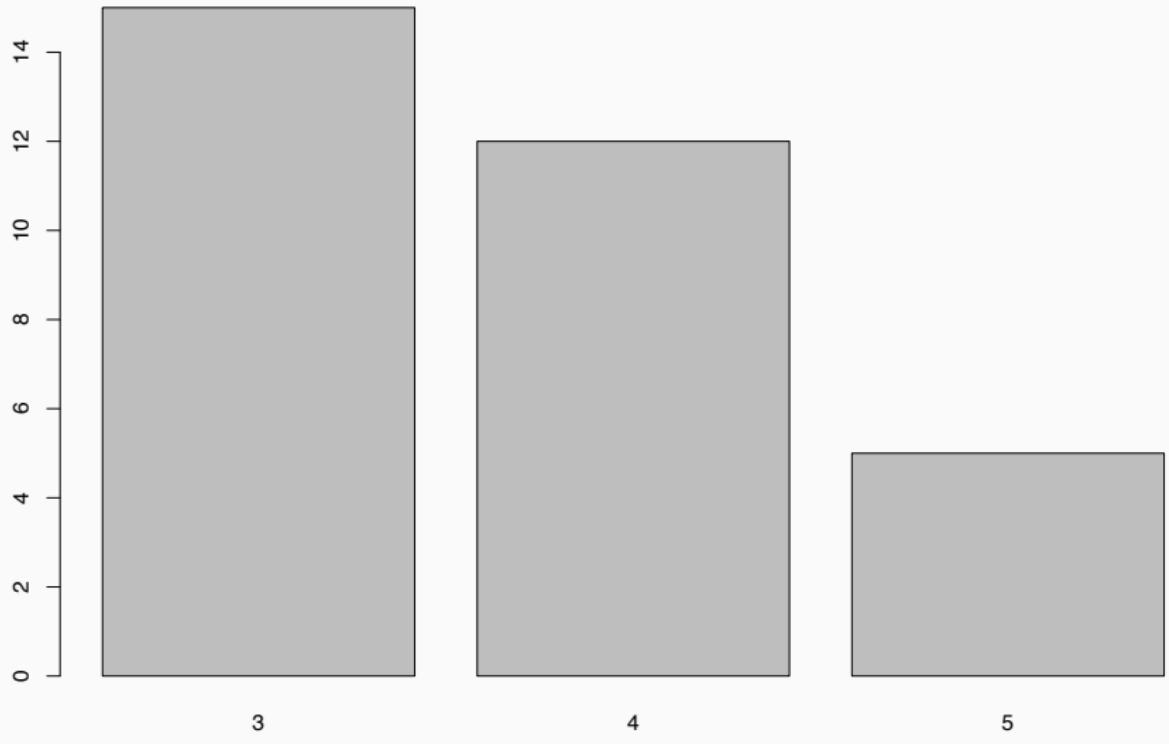
R basic plots

```
hist(mtcars$mpg)
```



R basic plots

```
barplot(table(mtcars$gear))
```



Two powerful packages

- ggplot2
 - grammar of graphics
 - It takes care of many of the fiddle details

<http://docs.ggplot2.org/>

- ggviz
 - grammar of graphics
 - heavily use pipe %>%
 - Interactive

<http://ggviz.rstudio.com>

Package - ggplot

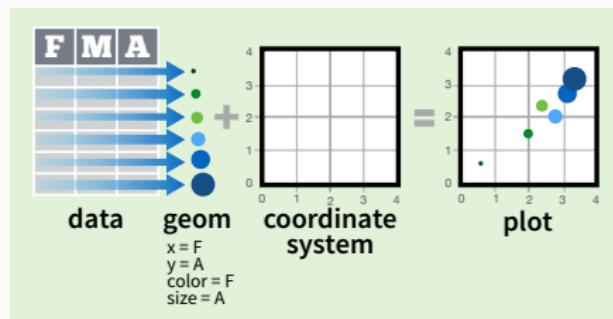
three key components

- a data set
- a *coordinate system*
- a set of *geoms*
 - layer by layer

```
graph = mtcars + cartesian + points + fill = + ...  
       data    coordinate system   mark      properties
```

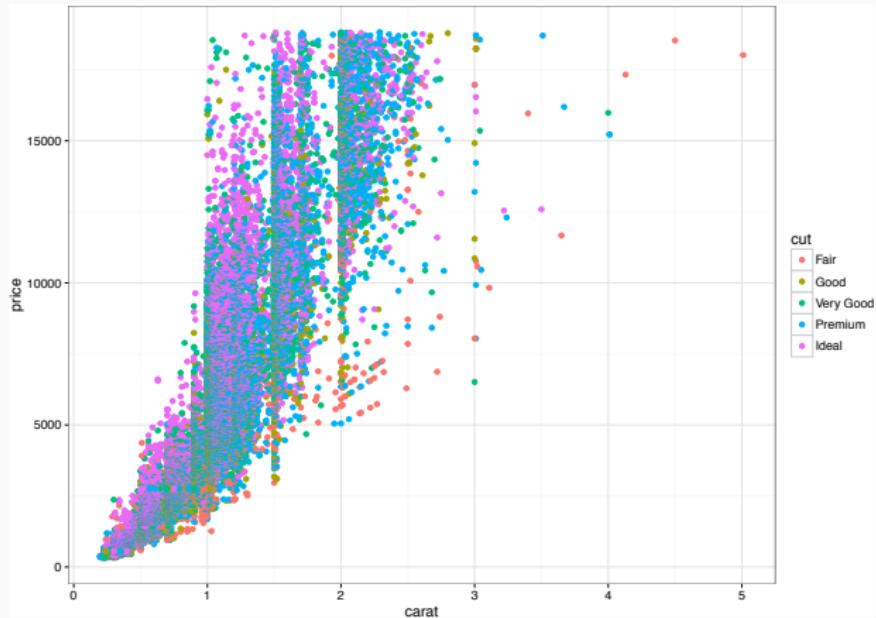
```
ggplot(mtcars, aes(x=mpg, y = hp, color = gear)) +  
geom_point() + geom_smooth()
```

ggplot grammar



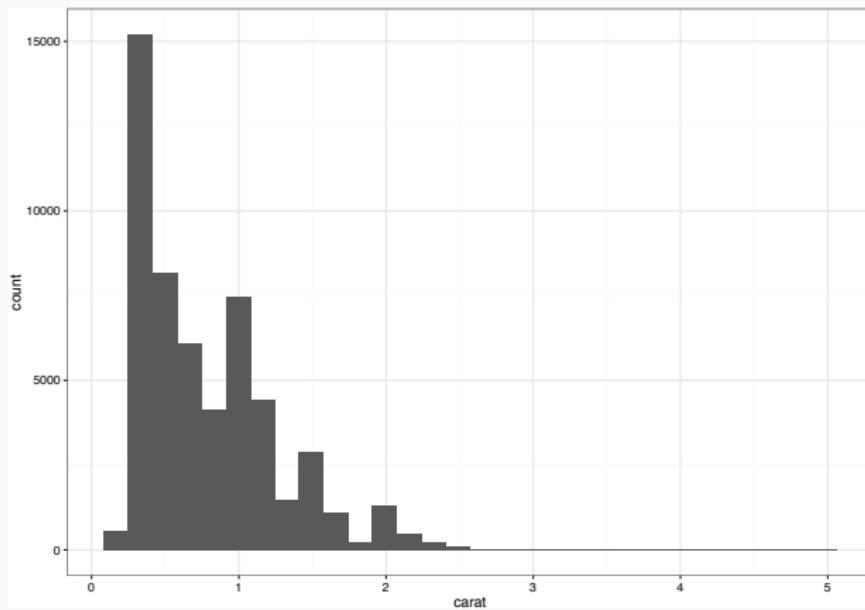
ggplot examples

```
ggplot(diamonds, aes(x = carat, y = price, color = cut)) +  
  geom_point()
```



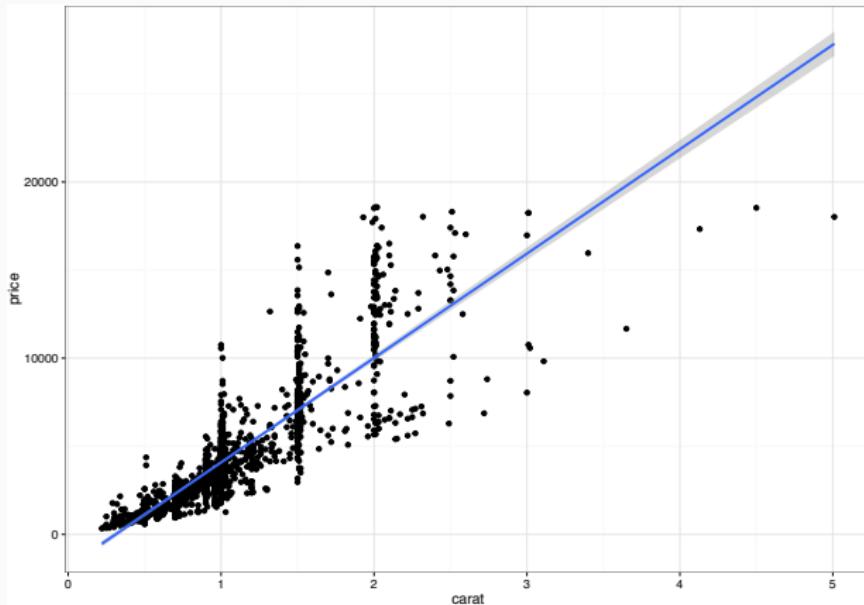
ggplot examples

```
ggplot(diamonds, aes(x = carat)) + geom_histogram()  
  
## `stat_bin()` using `bins = 30`. Pick better value with `
```



ggplot examples

```
iamonds %>% filter (cut == "Fair") %>% ggplot(., aes(x =  
geom_point() + geom_smooth(method = 'lm')
```



Package ggviz

- relative young, still under development
- powerful for interactive
- better consistent grammars than ggplot
 - data
 - coordinate system,
 - properties: marks, colors, lines

Tutorial Video:

<https://campus.datacamp.com/courses/ggviz-data-visualization-r-tutorial/chapter-one-the-grammar-of-graphics?ex=4>

Basic grammar of ggvis

```
dataset %>% ggvis(~x, ~y, fill = ~variable, ...) %>%  
layer_<mark>()
```

e.g.,

```
mtcars %>% ggvis(x = ~mpg, y = ~hp, fill = ~cyl) %>%  
layer_points() %>% layer_smooths() %>%  
layer_model_predictions(model='lm', stroke := 'red' )
```