

Charitatem Felicitatis

Charity Brings Happiness

```
## Charitatem Felicitatis
## Charity Brings Happiness

set.seed(9989)

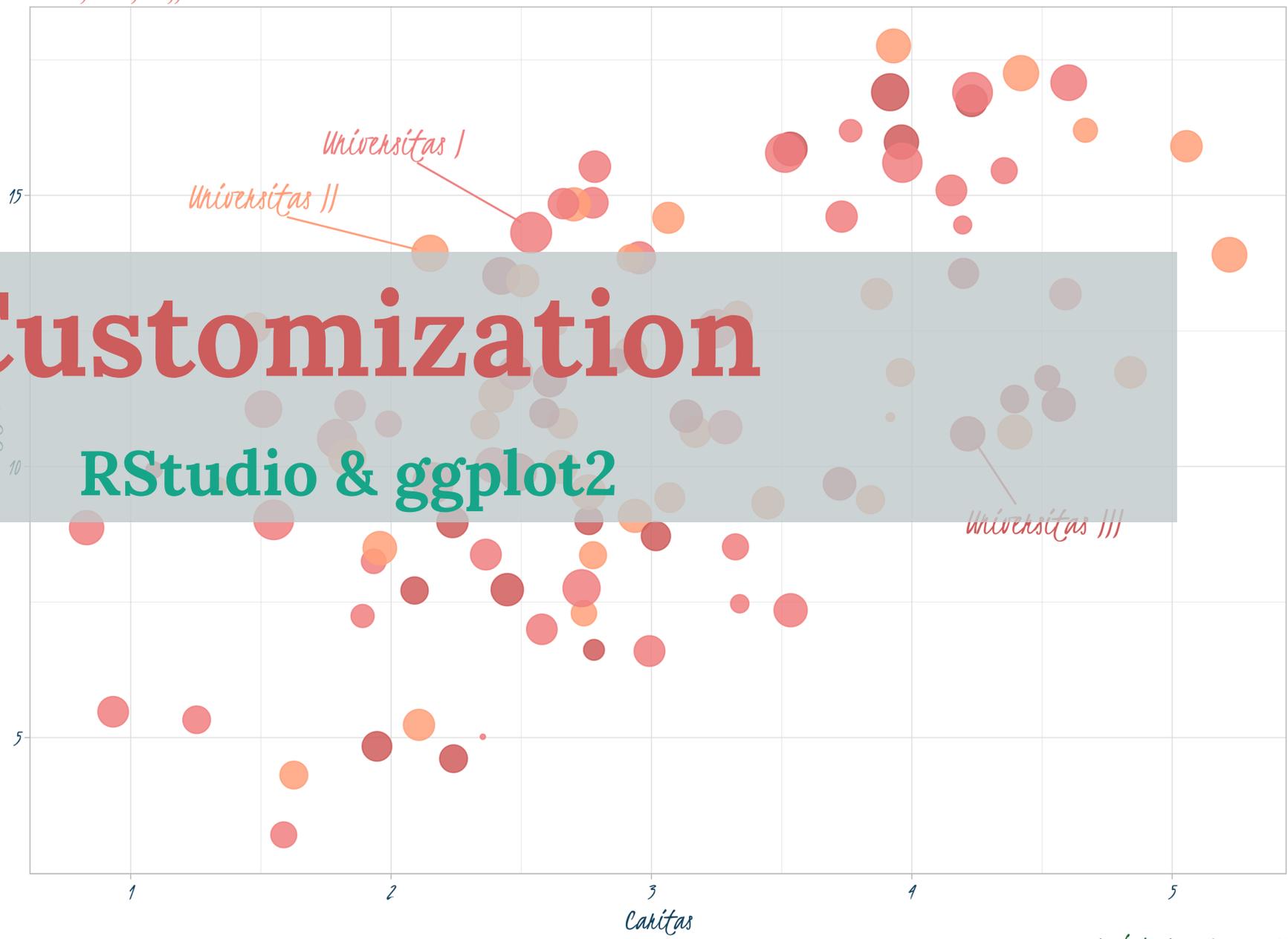
library(tidyverse)
library(extrafont)
font_import()
loadfonts()

df <- data_frame(
  x = rnorm(100) + 3,
  y = 2*x + runif(100, 0, 10),
  g = sample(cc(1,2,3), 100, replace = TRUE),
  z = y + rnorm(100, 1, 10)) %>%
  mutate(g = factor(g, labels = c("universitas I",
    "universitas II",
    "universitas III")))

ggplot(df, aes(x = x,
  y = y,
  color = g,
  fill = g)) +
  geom_point(aes(size = z),
    shape = 21,
    alpha = .85) +
  scale_color_manual(values = c("#F08080", "#FFA07A", "#CD5C5C"),
    guide = FALSE) +
  scale_fill_manual(values = c("#F08080", "#FFA07A", "#CD5C5C"),
    guide = FALSE) +
  scale_size_continuous(range = c(1,10),
    guide = FALSE) +
  labs(x = "Caritas",
    y = "Beatitude",
    title = "Charitatem Felicitatis",
    subtitle = "Charity Brings Happiness",
    caption = "Made by Tyson S. Barrett",
    for = "CarolAnnie") +
  theme_light() +
  theme(text = element_text(family = "Barrett",
    size = 18),
    plot.title = element_text(color = "#CD5C5C", size = 38),
    plot.subtitle = element_text(color = "#F08080"),
    axis.text = element_text(color = "#154360"),
    axis.title = element_text(color = "#154360"),
    plot.caption = element_text(color = "#186A3B")) +
  annotate("text",
    label = "Universitas I",
    x = 2, y = 16, color = "#F08080", family = "Barrett",
    size = 8) +
  annotate("segment",
    x = 2.1, xend = 2.5,
    y = 15.6, yend = 14.5,
    color = "#F08080") +
  annotate("text",
    label = "Universitas II",
    x = 1.5, y = 15, color = "#FFA07A", family = "Barrett",
    size = 8) +
  annotate("segment",
    x = 1.6, xend = 2.1,
    y = 14.6, yend = 14,
    color = "#FFA07A") +
  annotate("text",
    label = "Universitas III",
    x = 4.5, y = 9, color = "#CD5C5C", family = "Barrett",
    size = 8) +
  annotate("segment",
    x = 4.4, xend = 4.25,
    y = 9.3, yend = 10.4,
    color = "#CD5C5C")
ggsave("ggplot_art.pdf",
  width=8,
  height=8)
embed_fonts("ggplot_art.pdf",
  outfile = "ggplot_art_embed.pdf")
```

Customization

RStudio & ggplot2



1

Customizing RStudio

Fira Code (with ligatures)

README.md

Fira Code: monospaced font with programming ligatures

<code>FIRA CODE</code> <code>≠ →> ++ :=</code>			
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Fira Code (with ligatures)

Installation

Windows

Install chocolatey first and then do

```
choco install firacode
```

Mac

Install homebrew and then do

```
brew tap caskroom/fonts  
brew cask install font-fira-code
```

Fira Code (with ligatures)

Use It

The screenshot displays the RStudio interface with the Options dialog box open. The dialog box is titled "Options" and has a sidebar with categories: General, Code, Appearance, Pane Layout, Packages, R Markdown, Sweave, Spelling, Git/SVN, Publishing, and Terminal. The "Appearance" category is selected, showing the following settings:

- RStudio theme: Modern
- Editor font: FiraCode-Retina
- Editor Font size: 10
- Editor theme: Cobalt

The background shows an R script editor with the following code:

```
193 Rscript AME_MonteCarlo_Sims2.R 'c(1:15)'
194
195
196 ```{r, message = FALSE, warning = FALSE, echo
197 library(tidyverse)
198 library(furniture)
199 #library(hrbrthemes) ## hrbrthemes::import_ro
200 extrafont::loadfonts()
201
202 load("Sims_Binary_Out.rda")
203
204 conds <- expand.grid(
205   n       = c(50, 100, 200, 500, 1000),
206   effect = c(.55, 1.45, 2.22)
207 )
208
209 summed <- purrr::map(seq_along(out), ~{
210   data_frame(
211     values = unlist(out[[.x]]$values),
212     n = conds[.x, "n"],
213     trueprob = out[[.x]]$prob,
214     trueame = out[[.x]]$true)
215   }) %>%
216   do.call("rbind", .)
217
218 summed %>%
219   ggplot(aes(values, fill = interaction(n, ro
220     color = interaction(n, round(tru
221     geom_density(alpha = 0) +
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```

The console at the bottom shows the following text:

```
~/Dropbox/1 Dissertation/Individual Papers/PsychMethods/
is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in public
Type 'demo()' for some demos, 'help()' for on-line help, or
```

Fira Code (with ligatures)

ligatures

```
203
204 conds ← expand.grid(
205     n       = c(50, 100, 200, 500, 1000),
206     effect = c(.55, 1.45, 2.22)
207 )
208
209 summed ← purrr::map(seq_along(out), ~{
210     data_frame(
211         values = unlist(out[[.x]]$values),
212         n = conds[.x, "n"],
213         trueprob = out[[.x]]$prob,
214         trueame  = out[[.x]]$true)
215     }) %>%
216     do.call("rbind", .)
217
```

Fonts (with ligatures)

- **Fira Code** is my favorite but there are other fonts available
- This, with a good color scheme, makes writing code nicer

More options are certainly to come

2

Customizing `ggplot2`

HTML Colors

`ggplot2` can understand HTML
color codes

Allows us to use [HTML colors](#)

HTML Color Codes



HEX

#B03A2E

RGB

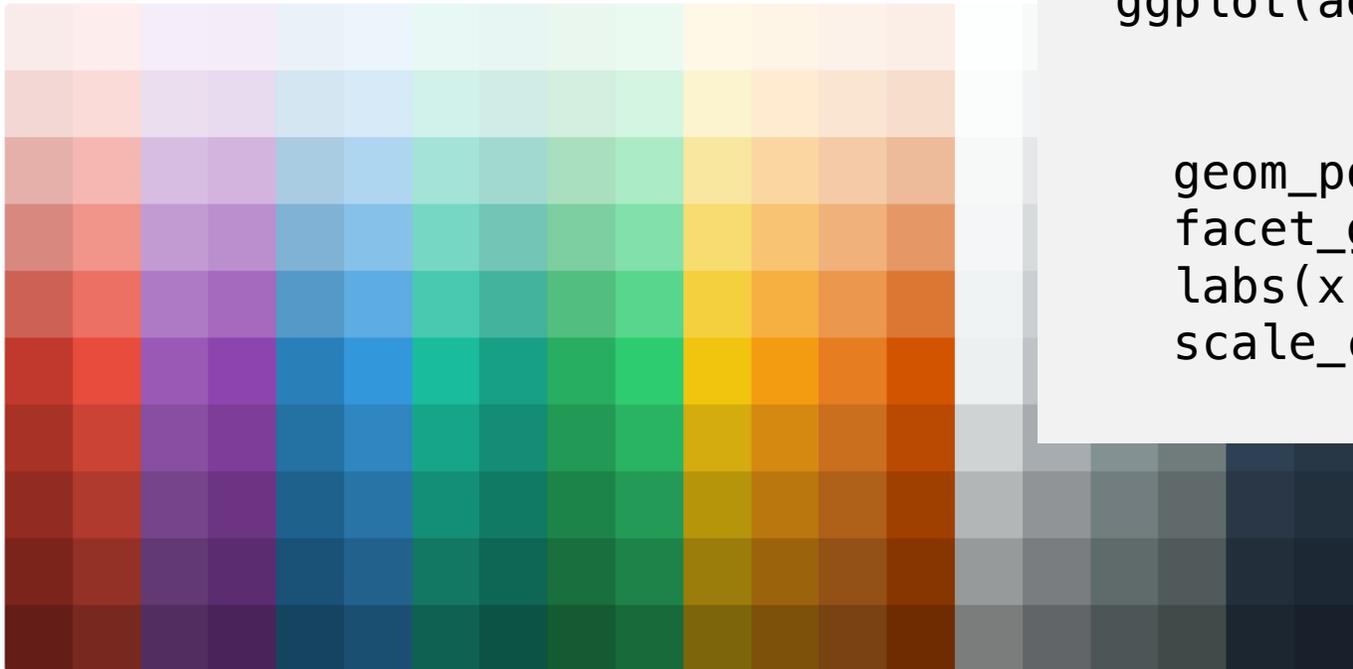
176, 58, 46

HSL

6, 74%, 44%



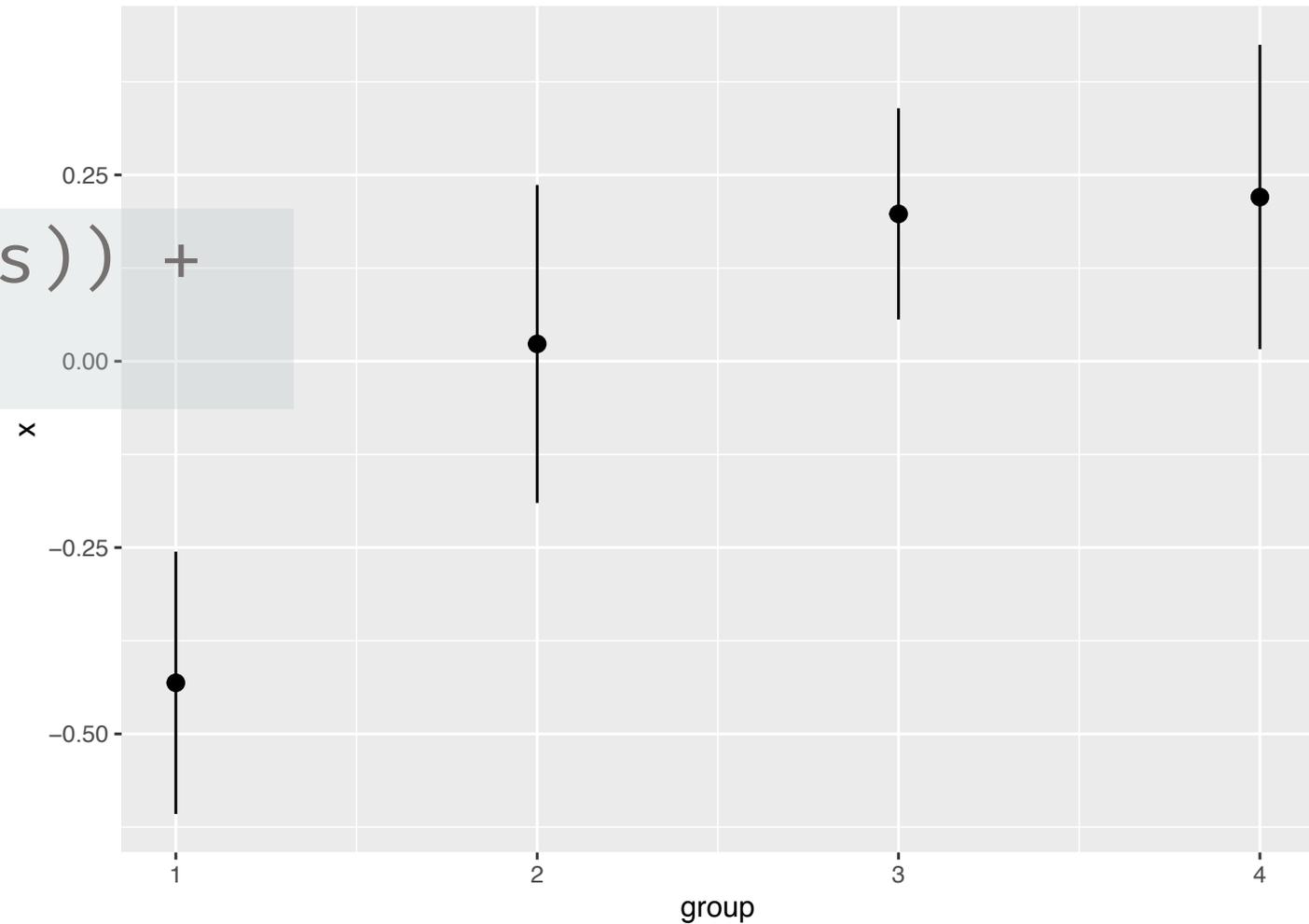
```
summed %>%  
  ggplot(aes(x = var,  
             y = values,  
             color = group)) +  
  geom_point() +  
  facet_grid(~ third_var) +  
  labs(x = "Estimate", y = "Density") +  
  scale_color_manual(values = c("#B03A2E",  
                                "#1F618D"))
```



Other Nice Tricks

Simple Summaries

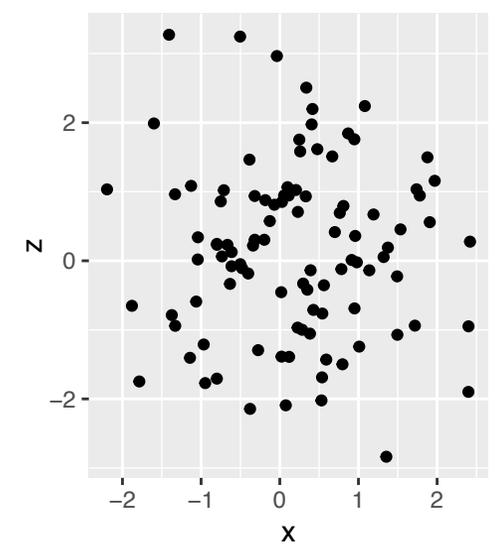
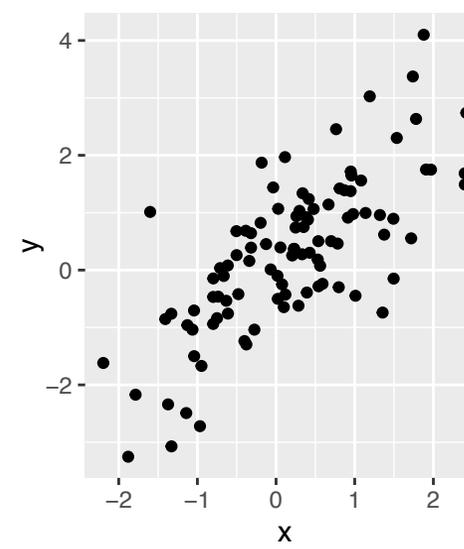
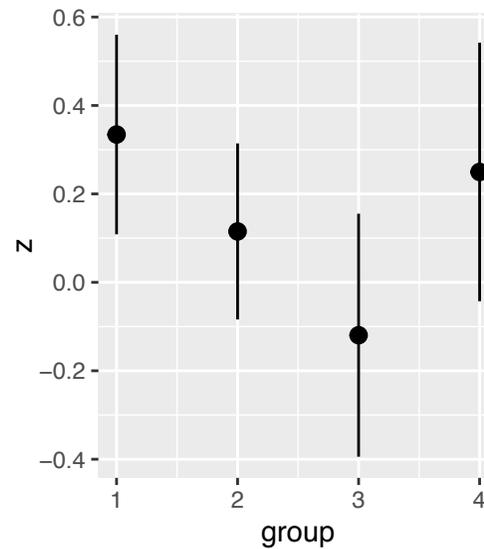
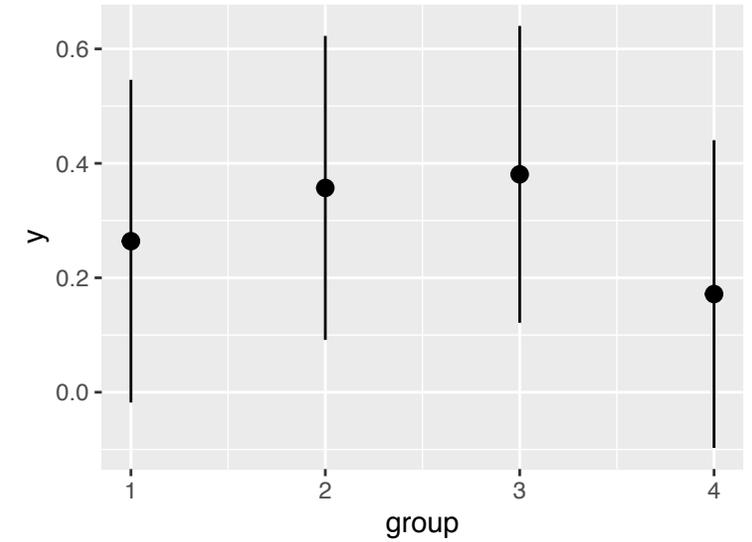
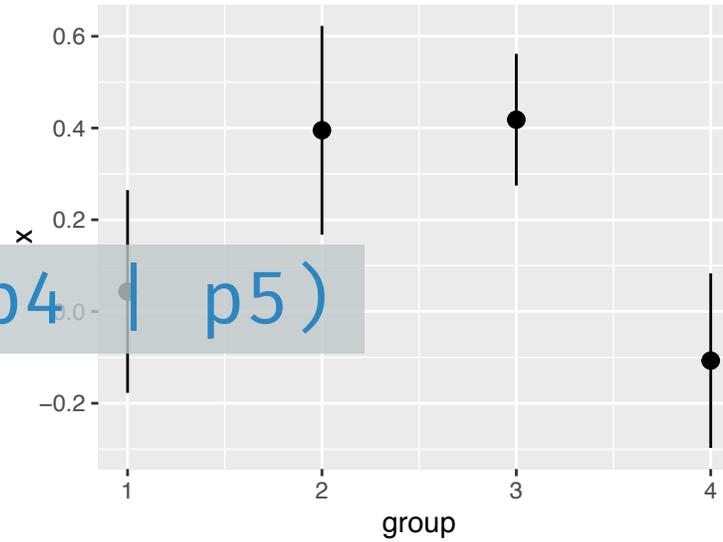
```
ggplot(aes(var, values)) +  
  stat_summary()
```



Other Nice Tricks

Patchwork

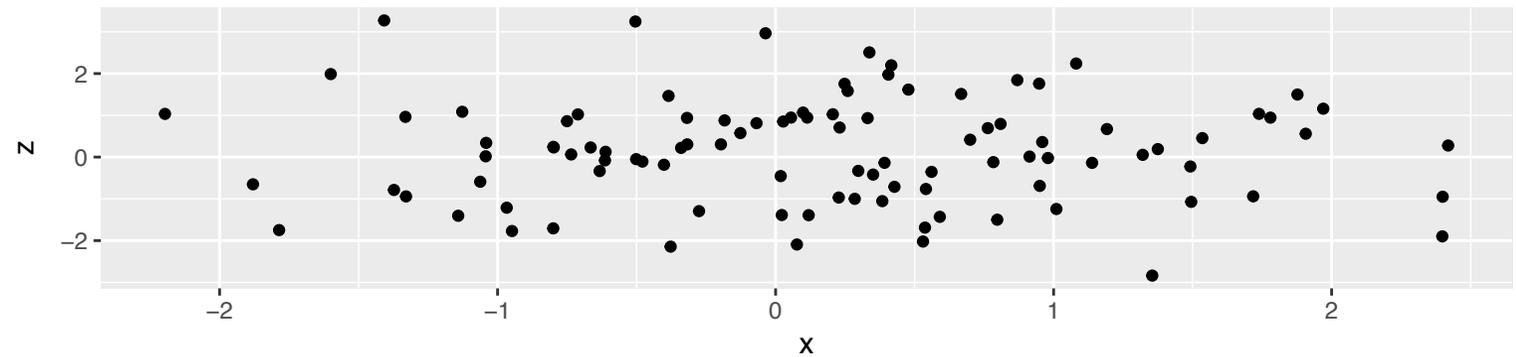
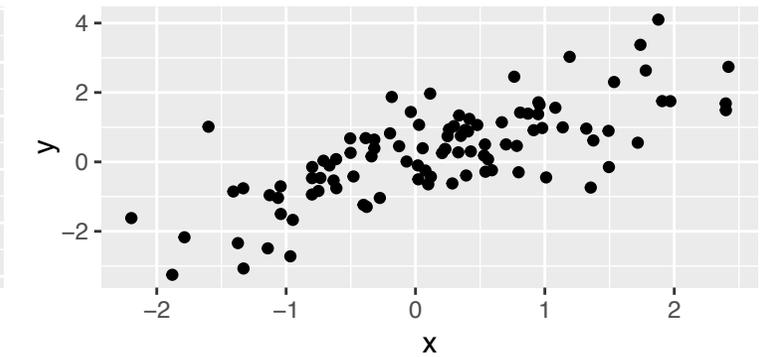
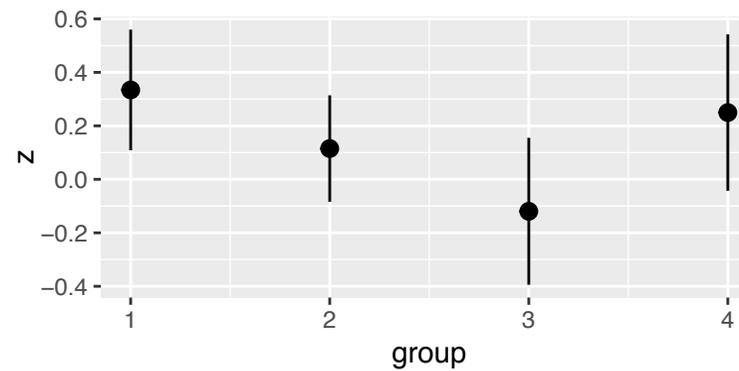
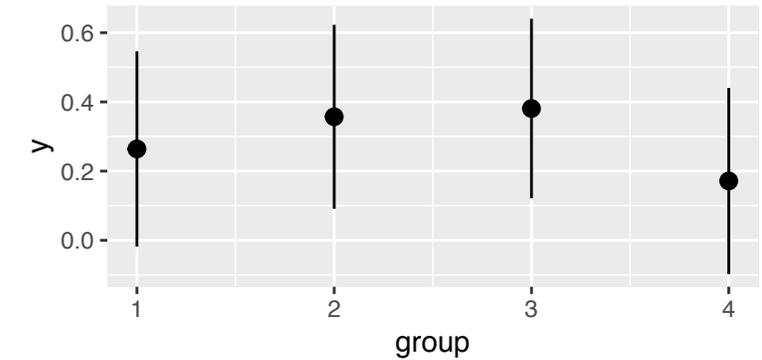
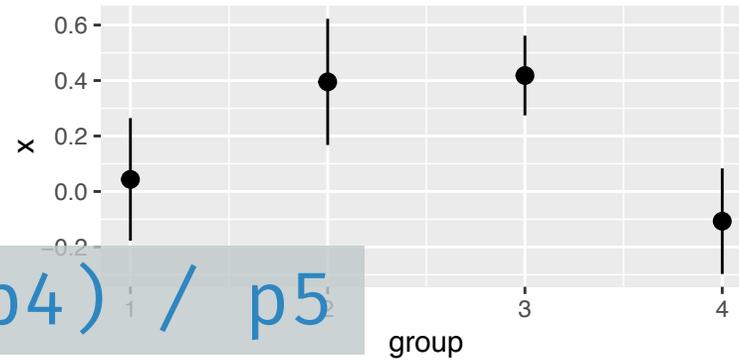
(p1 | p2) / (p3 | p4 | p5)



Other Nice Tricks

Patchwork

`(p1 | p2) / (p3 | p4) / p5`



Cool Animation