Outro

You, Me, and NSE

Non-standard evaluation is bananas!

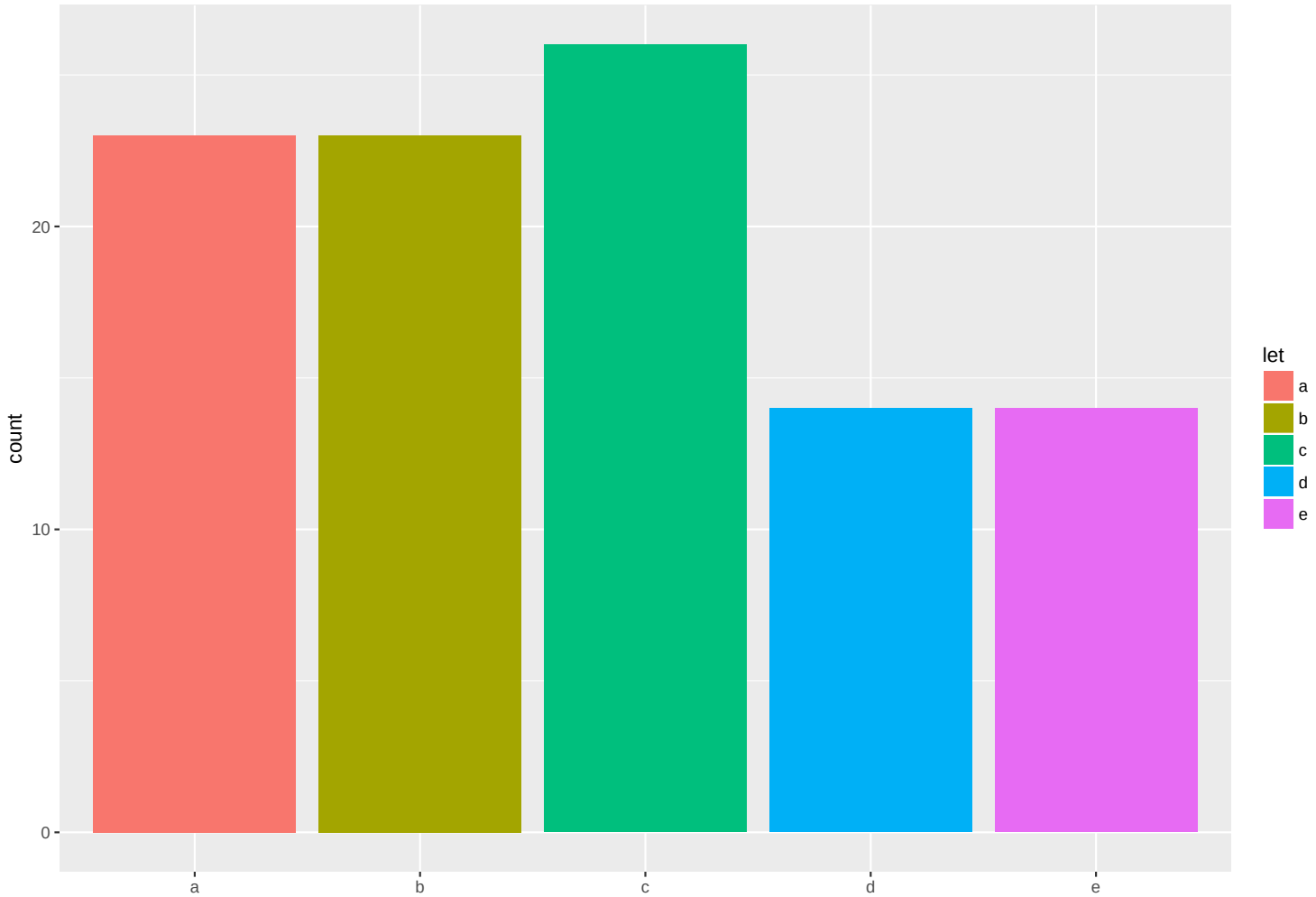
ggplot2 - Graphics at the spead of thought

Really fast plotting with ggplot2.

```
library(ggplot2)
dat <- data.frame(let = sample(letters[c(1:5,1:3,1:2)],
                               100,
                               replace = T))
```

ggplot2 - Graphics at the spead of thought

```
ggplot(dat) +
    geom_bar(aes(x=let, fill = let), stat="count")
```



tidverse

Write data processing using verb like syntax, chaining together a pipeline of data processing routines.

```
library(tidyverse)
tib <- tibble(x = runif(10000, 1, 100),
              y = runif(10000, 1, 100),
              let=sample(letters[c(1:5,1:3)], 10000, replace = T))
tib %>%
    filter(let %in% c("a", "b", "c")) %>%
    mutate(prod = x*y) -> tib2
```

data.table

Super fast tabular data manipulation with a very succinct syntax.

```
library(data.table)
dt <- data.table(x = runif(10000, 1, 100),
                 y = runif(10000, 1, 100),
                 let=sample(letters[c(1:5,1:3)], 10000, replace = T))
```

data.table

Group by using the by argument.

```
dt[, .N, by = let]
```

```
##    let    N
## 1:   a 2527
## 2:   d 1174
## 3:   e 1242
## 4:   c 2558
## 5:   b 2499
```

data.table

Assignment by reference.

```
dt[, prod:=x*y]
dt
```

```
##                 x        y let       prod
##     1: 74.492806 66.60992   a 4961.95987
##     2: 83.617783 27.58495   a 2306.59213
##     3:  3.245873 13.28463   d   43.12023
##     4: 31.960953 32.99187   e 1054.45149
##     5: 24.086816 81.34454   c 1959.33107
##    ---
##  9996: 80.536242 41.09855   c 3309.92293
##  9997: 72.212796 68.96125   b 4979.88494
##  9998: 32.479728 11.31963   a  367.65865
##  9999: 12.578302 12.61115   a  158.62681
## 10000: 45.768143 20.13591   d  921.58309
```