Outro

You, Me, and NSE

Non-standard evaluation is bananas!

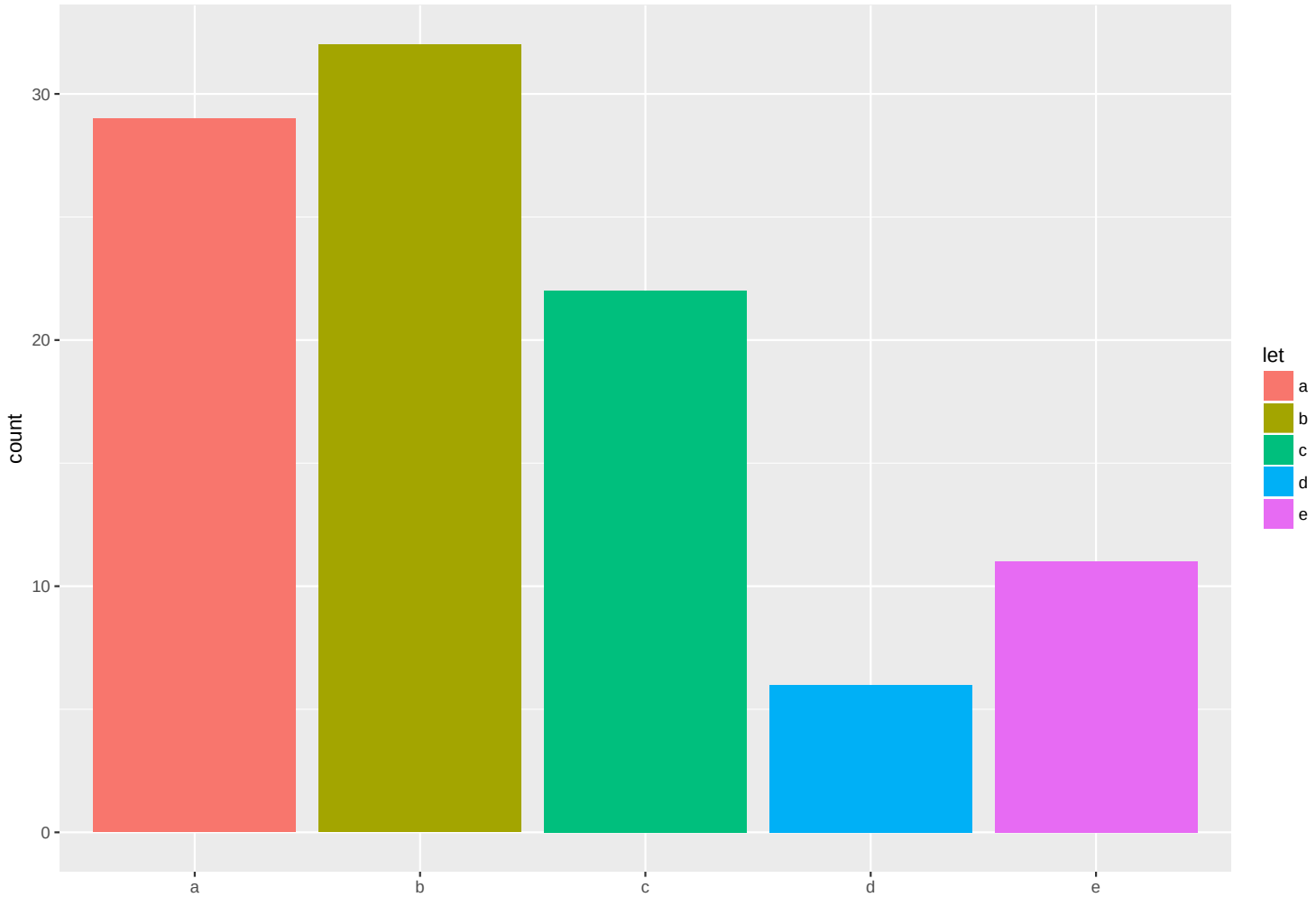
ggplot2 - Graphics at the spead of thought

Really fast plotting with ggplot2.

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

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:   d 1259
## 2:   a 2512
## 3:   c 2499
## 4:   e 1213
## 5:   b 2517
```

data.table

Assignment by reference.

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

```
##                 x         y let      prod
##     1: 75.114929 58.591321   d 4401.0829
##     2: 65.309108 94.039962   a 6141.6661
##     3: 47.885921 56.683580   c 2714.3454
##     4: 41.670246 85.930843   c 3580.7593
##     5: 73.535328 81.593757   e 6000.0237
##    ---
##  9996: 94.374117 42.425327   a 4003.8528
##  9997:  4.600165 89.150115   c  410.1053
##  9998: 75.241392 83.526279   c 6284.6335
##  9999: 30.747293  6.440417   d  198.0254
## 10000: 68.019057 77.036959   a 5239.9813
```