Part2.R

HP

2024-10-01

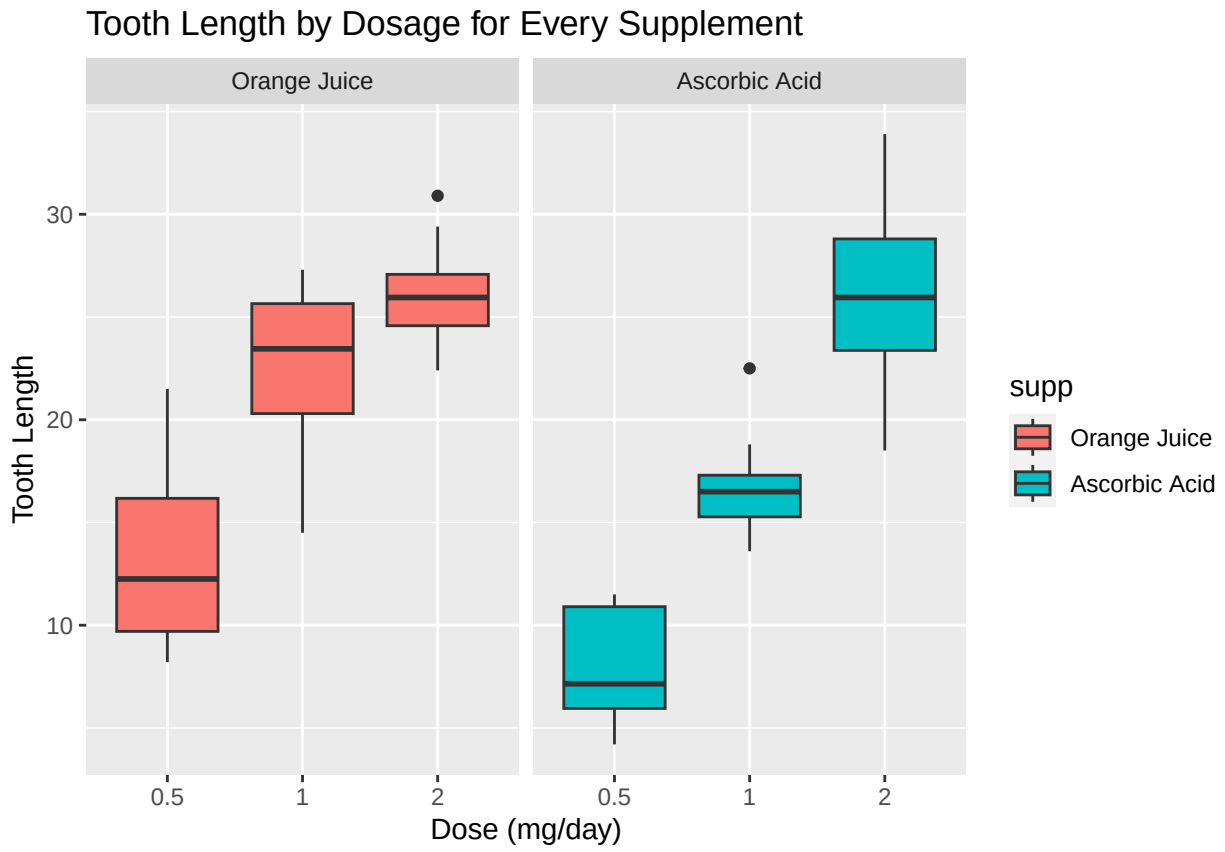
```
library(datasets)
library(ggplot2)
str(ToothGrowth)
```

```
## 'data.frame':    60 obs. of  3 variables:
##  $ len : num  4.2 11.5 7.3 5.8 6.4 10 11.2 11.2 5.2 7 ...
##  $ supp: Factor w/ 2 levels "OJ","VC": 2 2 2 2 2 2 2 2 2 2 ...
##  $ dose: num  0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 ...
```

```
summary(ToothGrowth)
```

```
##       len        supp         dose
##  Min.   : 4.20   OJ:30   Min.   :0.500
##  1st Qu.:13.07   VC:30   1st Qu.:0.500
##  Median :19.25           Median :1.000
##  Mean   :18.81           Mean   :1.167
##  3rd Qu.:25.27           3rd Qu.:2.000
##  Max.   :33.90           Max.   :2.000
```

```
data <- ToothGrowth
levels(data$supp) <- c("Orange Juice", "Ascorbic Acid")
g <- ggplot(data, aes(x = factor(dose), y = len))
g <- g + facet_grid(.~supp)
g <- g + geom_boxplot(aes(fill = supp))
g <- g + labs(title = "Tooth Length by Dosage for Every Supplement")
g <- g + labs(x = "Dose (mg/day)", y = "Tooth Length")
print(g)
```




```
h0.5 <- t.test(len ~ supp, data = subset(data, dose == 0.5))
h0.5$conf.int
```

```
## [1] 1.719057 8.780943
## attr(,"conf.level")
## [1] 0.95
```

```
h0.5$p.value
```

```
## [1] 0.006358607
```

```
h1 <- t.test(len ~ supp, data = subset(data, dose == 1))
h1$conf.int
```

```
## [1] 2.802148 9.057852
## attr(,"conf.level")
## [1] 0.95
```

```
h1$p.value
```

```
## [1] 0.001038376
```

```r
h2 <- t.test(len ~ supp, data = subset(data, dose == 2))
h2$conf.int
```

```
## [1] -3.79807  3.63807
## attr(,"conf.level")
## [1] 0.95
```

```r
h2$p.value
```

```
## [1] 0.9638516
```