PG_Coursera

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10/19/2020

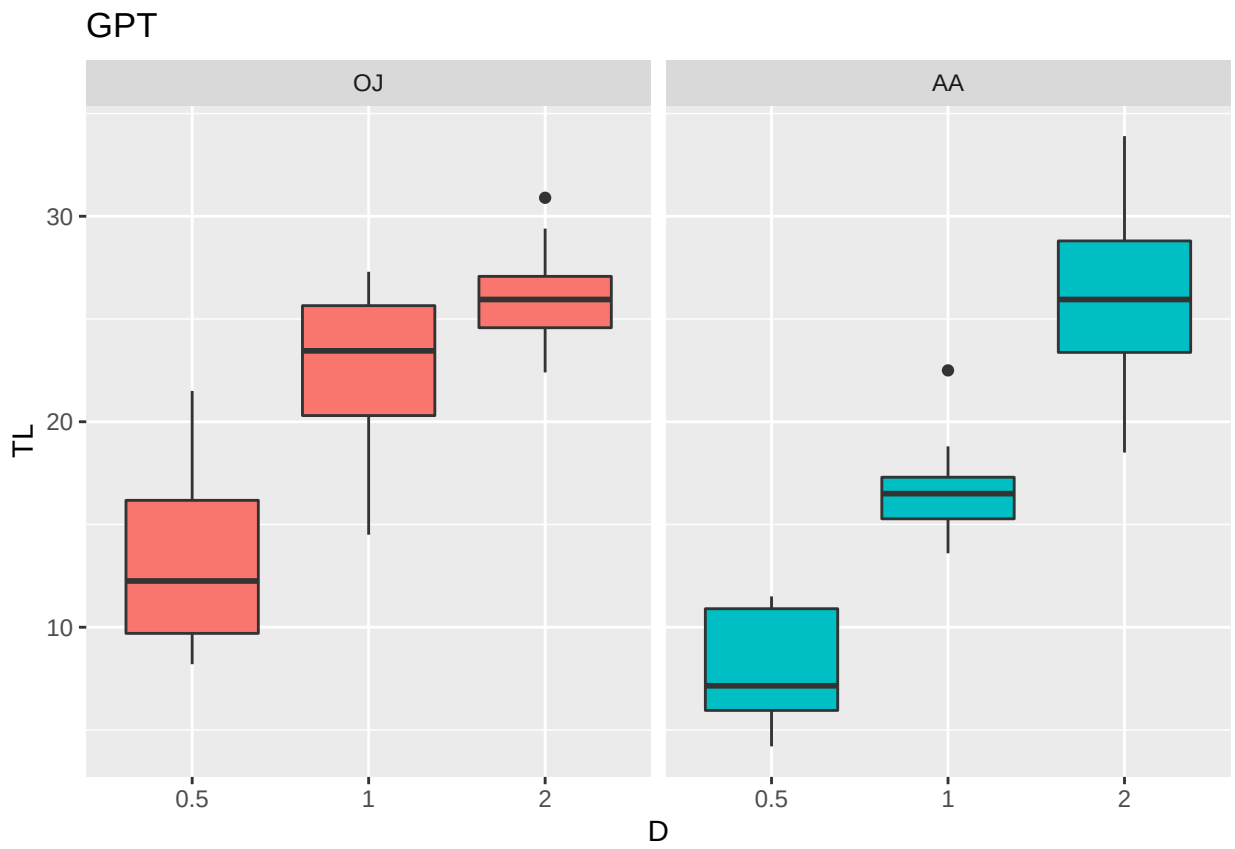
```
library(datasets)
data(ToothGrowth)
str(ToothGrowth)
head(ToothGrowth)
summary(ToothGrowth)
```

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 3.6.3
```

```
t = ToothGrowth
levels(t$supp) <- c("OJ", "AA")
ggplot(t, aes(x=factor(dose), y=len)) +
  facet_grid(.~supp) +
  geom_boxplot(aes(fill = supp), show_guide = FALSE) +
  labs(title="GPT",
    x="D",
    y="TL")
```

```
## Warning: `show_guide` has been deprecated. Please use `show.legend` instead.
```




```
hypoone<-t.test(len ~ supp, data = t)
hypoone$conf.int
```

```
## [1] -0.1710156  7.5710156
## attr(,"conf.level")
## [1] 0.95
```

```
hypoone$p.value
```

```
## [1] 0.06063451
```

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

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

```
hypotwo$p.value
```

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

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

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

```
hypothree$p.value
```

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

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

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

```
hypofour$p.value
```

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

Regards, Pratik Mohanty

On Mon, 19 Oct 2020 at 21:39, suhal shetty shettysuhal708@gmail.com wrote:

On Mon, 19 Oct 2020 at 21:37, Pratik Mohanty mohantypratik31@gmail.com wrote:

title: "SI_PG_Coursera" author: "Pratik Mohanty" date: "10/19/2020" output: pdf_document: default html_document: default —

```
ECHO=TRUE
set.seed(1337)
Lbda = 0.2
e_x_p_o_nen_tials = 40
```

```
simulationmeans = NULL
for (i in 1 : 1000) simulationmeans = c(simulationmeans, mean(rexp(e_x_p_o_nen_tials, Lbda)))
```

```
mean(simulationmeans)
```

```
## [1] 5.055995
```

```
Lbda^-1
```

```
## [1] 5
```

```r
abs(mean(simulationmeans)-Lbda^-1)
```

```
## [1] 0.05599526
```

```r
var(simulationmeans)
```

```
## [1] 0.6543703
```

```r
(Lbda * sqrt(e_x_p_o_nen_tials))^-2
```

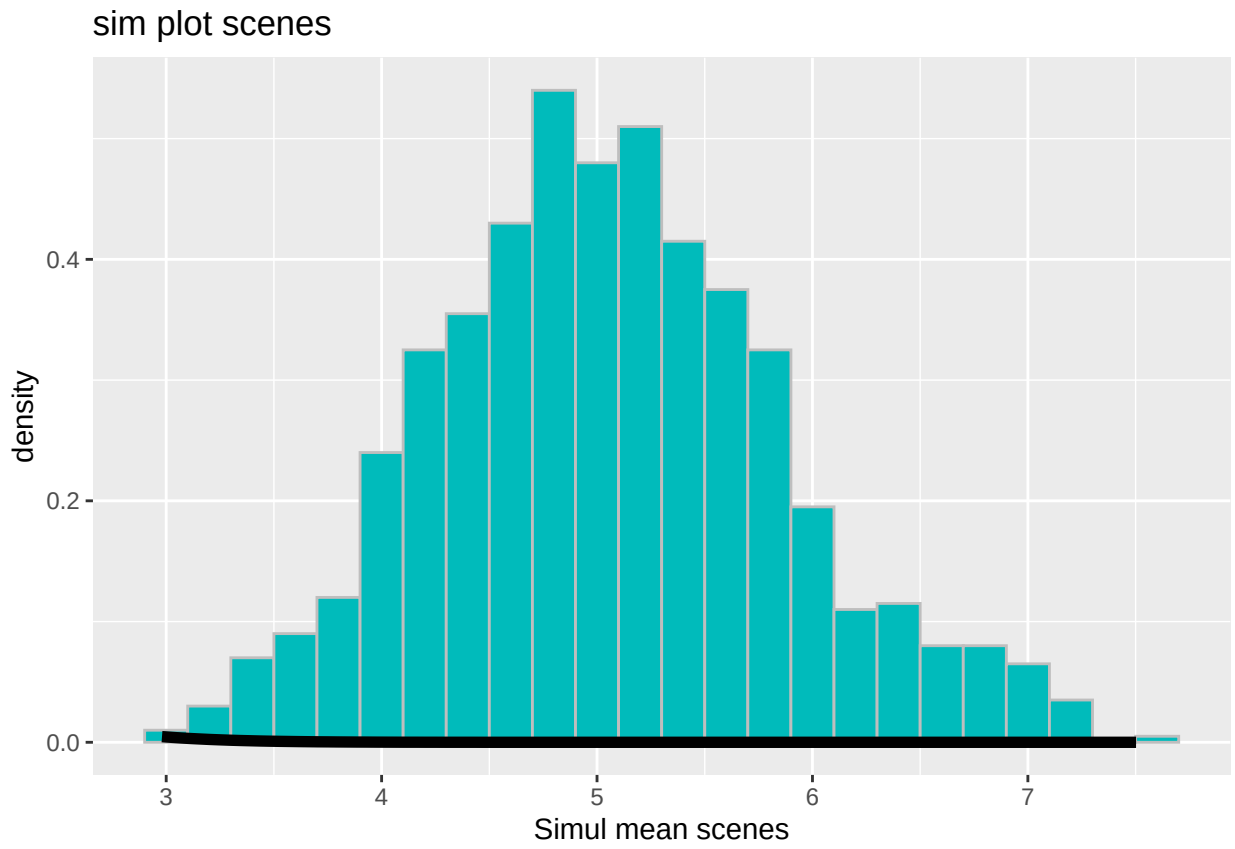
```
## [1] 0.625
```

```r
abs(var(simulationmeans)-(Lbda * sqrt(e_x_p_o_nen_tials))^-2)
```

```
## [1] 0.0293703
```

```r
library(ggplot2)
ggplot(data.frame(y=simulationmeans), aes(x=y)) +
  geom_histogram(aes(y=..density..), binwidth=0.2, fill="#00BBBB",
                 color="grey") +
  stat_function(fun=dnorm, arg=list(mean=Lbda^-1,
                                    sd=(Lbda*sqrt(e_x_p_o_nen_tials))^-1),
                size=2) +
  labs(title="sim plot scenes", x="Simul mean scenes")
```

```
## Warning: Ignoring unknown parameters: arg
```


sim plot scenes
density
0.4
0.2
0.0
3
4
5
6
7
Simul mean scenes