````
---
title: "R Notebook"
output: html_notebook
---
```{r}
setwd(dir = "/Users/Ershui13/Desktop/TP_BU")
```

This is an [R Markdown](http://rmarkdown.rstudio.com) Notebook. When you
execute code within the notebook, the results appear beneath the code.

Try executing this chunk by clicking the *Run* button within the chunk
or by placing your cursor inside it and pressing *Cmd+Shift+Enter*.

```{r}
par(mfrow=c(2,4))
plot(m_pl, main = "Adam's verb distribution", ylab = "CDF", )
lines(m_pl, col = 'red')
lines(m_ln, col = 'green')
lines(m_pois, col = 'blue')
lines(m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(eve_m_pl, main = "Eve's verb distribution", ylab = "CDF",)
lines(eve_m_pl, col = 'red')
lines(eve_m_ln, col = 'green')
lines(eve_m_pois, col = 'blue')
lines(eve_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(fraser_m_pl, main = "Fraser's verb distribution", ylab = "CDF",)
lines(fraser_m_pl, col = 'red')
lines(fraser_m_ln, col = 'green')
lines(fraser_m_pois, col = 'blue')
lines(fraser_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(naomi_m_ln,main = "Naomi's verb distribution", ylab = "CDF",)
lines(naomi_m_pl, col = 'red')
lines(naomi_m_ln, col = 'green')
lines(naomi_m_pois, col = 'blue')
lines(naomi_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
````
````

```
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(peter_m_ln,main = "Peter's verb distribution", ylab = "CDF",)
lines(peter_m_pl, col = 'red')
lines(peter_m_ln, col = 'green')
lines(peter_m_pois, col = 'blue')
lines(peter_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(allison_m_ln,main = "Allison's verb distribution", ylab = "CDF",)
lines(allison_m_pl, col = 'red')
lines(allison_m_ln, col = 'green')
lines(allison_m_pois, col = 'blue')
lines(allison_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(april_m_ln,main = "April's verb distribution", ylab = "CDF",)
lines(april_m_pl, col = 'red')
lines(april_m_ln, col = 'green')
lines(april_m_pois, col = 'blue')
lines(april_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(sarah_m_ln, main = "Sarah's verb distribution", ylab = "CDF",)
lines(sarah_m_pl, col = 'red')
lines(sarah_m_ln, col = 'green')
lines(sarah_m_pois, col = 'blue')
lines(sarah_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.4)

```

Add a new chunk by clicking the *Insert Chunk* button on the toolbar or by pressing *Cmd+Option+I*.

When you save the notebook, an HTML file containing the code and output will be saved alongside it (click the *Preview* button or press *Cmd+Shift+K* to preview the HTML file).

The preview shows you a rendered HTML copy of the contents of the editor. Consequently, unlike *Knit*, *Preview* does not run any R code chunks. Instead, the output of the chunk when it was last run in the

editor is displayed.

```{r}
library('poweRlaw')

plot(eve_m_pl, main = "Eve's verb distribution", ylab = "CDF",)
lines(eve_m_pl, col = 'red')
lines(eve_m_ln, col = 'green')
lines(eve_m_pois, col = 'blue')
lines(eve_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(fraser_m_pl, main = "Fraser's verb distribution", ylab = "CDF",)
lines(fraser_m_pl, col = 'red')
lines(fraser_m_ln, col = 'green')
lines(fraser_m_pois, col = 'blue')
lines(fraser_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(naomi_m_ln,main = "Naomi's verb distribution", ylab = "CDF",)
lines(naomi_m_pl, col = 'red')
lines(naomi_m_ln, col = 'green')
lines(naomi_m_pois, col = 'blue')
lines(naomi_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(peter_m_ln,main = "Peter's verb distribution", ylab = "CDF",)
lines(peter_m_pl, col = 'red')
lines(peter_m_ln, col = 'green')
lines(peter_m_pois, col = 'blue')
lines(peter_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(allison_m_ln,main = "Allison's verb distribution", ylab = "CDF",)
lines(allison_m_pl, col = 'red')
lines(allison_m_ln, col = 'green')
lines(allison_m_pois, col = 'blue')
lines(allison_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
plot(april_m_ln,main = "April's verb distribution", ylab = "CDF",)
```

```
lines(april_m_pl, col = 'red')
lines(april_m_ln, col = 'green')
lines(april_m_pois, col = 'blue')
lines(april_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
```

```{r}
adam <- read.csv(file = 'Adam.csv')
adam_m_pl <- displ$new(adam$count)
estpl_adam <- estimate_xmin(m_pl)
adam_m_pl$setXmin(estpl_adam)
adam_m_ln<- dislnorm$new(adam$count)
estln_adam <-estimate_xmin(adam_m_ln)
adam_m_ln$setXmin(estln_adam)
adam_m_pois <-dispois$new(adam$count)
est_pois_adam <-estimate_xmin(adam_m_pois)
adam_m_pois$setXmin(est_pois_adam)
adam_m_exp = disexp$new(adam$count)
est_exp_adam <- estimate_xmin(adam_m_exp)
adam_m_exp$setXmin(est_exp_adam)
```

```{r}
adam_m_ln
```
```{r}
adamll <- lm(log(adam$rank) ~ log(adam$count))
adamll
```

```{r}
bs_pln = bootstrap_p(m_ln)
bs_pln
m_ln$setXmin(m_pl$getXmin())
estp = estimate_pars(m_ln)
m_ln$setPars(estp)
comp = compare_distributions(m_pl, m_ln)
comp[2]
```

```{r}
bs_pln[1]
```

```{r}
eve_bs_pln = bootstrap_p(eve_m_ln)
eve_bs_pln[1]
eve_m_ln$setXmin(eve_m_pl$getXmin())
estp_eve = estimate_pars(eve_m_ln)
eve_m_ln$setPars(estp_eve)
comp_eve = compare_distributions(eve_m_pl, eve_m_ln)
comp_eve[2]
comp_eve[1]
```

```{r}
eve_bs_ppl = bootstrap_p(eve_m_pl)
eve_bs_ppl[1]
```

```{r}
data <- read.csv(file = 'Eve.csv')
eve_m_pl <- displ$new(data$count)
eve_estpl <- estimate_xmin(eve_m_pl)
eve_m_pl$setXmin(eve_estpl)
eve_m_ln <- dislnorm$new(data$count)
eve_estln <-estimate_xmin(eve_m_ln)
eve_m_ln$setXmin(eve_estln)
eve_m_pois <-dispois$new(data$count)
eve_est_pois <-estimate_xmin(eve_m_pois)
eve_m_pois$setXmin(eve_est_pois)
eve_m_exp = disexp$new(data$count)
eve_est_exp <- estimate_xmin(eve_m_exp)
eve_m_exp$setXmin(eve_est_exp)
plot(eve_m_ln)
lines(eve_m_pl, col = 'red')
lines(eve_m_ln, col = 'green')
lines(eve_m_pois, col = 'blue')
lines(eve_m_exp, col = 'purple')
```

```{r}
bs_pln_eve = bootstrap_p(eve_m_ln)
bs_pln
m_ln$setXmin(m_pl$getXmin())
estp = estimate_pars(m_ln)
m_ln$setPars(estp)
comp = compare_distributions(m_pl, m_ln)
comp[2]
```

```{r}
library('poweRlaw')
data <- read.csv(file = 'Fraser.csv')
fraser_m_pl <- displ$new(data$count)
fraser_estpl <- estimate_xmin(fraser_m_pl)
fraser_m_pl$setXmin(fraser_estpl)
fraser_m_ln <- dislnorm$new(data$count)
fraser_estln <-estimate_xmin(fraser_m_ln)
fraser_m_ln$setXmin(fraser_estln)
fraser_m_pois <-dispois$new(data$count)
fraser_est_pois <-estimate_xmin(fraser_m_pois)
fraser_m_pois$setXmin(fraser_est_pois)
fraser_m_exp = disexp$new(data$count)
fraser_est_exp <- estimate_xmin(fraser_m_exp)
fraser_m_exp$setXmin(fraser_est_exp)
plot(fraser_m_ln)
lines(fraser_m_pl, col = 'red')
lines(fraser_m_ln, col = 'green')
lines(fraser_m_pois, col = 'blue')
lines(fraser_m_exp, col = 'purple')
```

```{r}
fraser_bs_pln = bootstrap_p(fraser_m_ln)
fraser_bs_pln[1]
fraser_bs_ppl = bootstrap_p(fraser_m_pl)
fraser_bs_ppl[1]
fraser_m_ln$setXmin(fraser_m_pl$getXmin())
estp_fraser = estimate_pars(fraser_m_ln)
fraser_m_ln$setPars(estp_fraser)
comp_fraser = compare_distributions(fraser_m_pl, fraser_m_ln)
comp_fraser[2]
comp_fraser[1]
```

```{r}
data <- read.csv(file = 'Naomi.csv')
naomi_m_pl <- displ$new(data$count)
naomi_estpl <- estimate_xmin(naomi_m_pl)
naomi_m_pl$setXmin(naomi_estpl)
naomi_m_ln <- dislnorm$new(data$count)
naomi_estln <-estimate_xmin(naomi_m_ln)
naomi_m_ln$setXmin(naomi_estln)
naomi_m_pois <-dispois$new(data$count)
naomi_est_pois <-estimate_xmin(naomi_m_pois)
naomi_m_pois$setXmin(naomi_est_pois)
```

```
naomi_m_exp = disexp$new(data$count)
naomi_est_exp <- estimate_xmin(naomi_m_exp)
naomi_m_exp$setXmin(naomi_est_exp)
plot(naomi_m_ln)
lines(naomi_m_pl, col = 'red')
lines(naomi_m_ln, col = 'green')
lines(naomi_m_pois, col = 'blue')
lines(naomi_m_exp, col = 'purple')
```

```{r}
naomi_bs_pln = bootstrap_p(naomi_m_ln)
naomi_bs_pln[1]
naomi_bs_ppl = bootstrap_p(naomi_m_pl)
naomi_bs_ppl[1]
naomi_m_ln$setXmin(naomi_m_pl$getXmin())
estp_naomi = estimate_pars(naomi_m_ln)
naomi_m_ln$setPars(estp_naomi)
comp_naomi = compare_distributions(naomi_m_pl, naomi_m_ln)
comp_naomi[2]
comp_naomi[1]
```

```{r}
data <- read.csv(file = 'Peter.csv')
peter_m_pl <- displ$new(data$count)
peter_estpl <- estimate_xmin(peter_m_pl)
peter_m_pl$setXmin(peter_estpl)
peter_m_ln <- dislnorm$new(data$count)
peter_estln <-estimate_xmin(peter_m_ln)
peter_m_ln$setXmin(peter_estln)
peter_m_pois <-dispois$new(data$count)
peter_est_pois <-estimate_xmin(peter_m_pois)
peter_m_pois$setXmin(peter_est_pois)
peter_m_exp = disexp$new(data$count)
peter_est_exp <- estimate_xmin(peter_m_exp)
peter_m_exp$setXmin(peter_est_exp)
plot(peter_m_ln)
lines(peter_m_pl, col = 'red')
lines(peter_m_ln, col = 'green')
lines(peter_m_pois, col = 'blue')
lines(peter_m_exp, col = 'purple')
```

```{r}
peter_bs_pln = bootstrap_p(peter_m_ln)
peter_bs_pln[1]
peter_bs_ppl = bootstrap_p(peter_m_pl)
peter_bs_ppl[1]
```

```
peter_m_ln$setXmin(peter_m_pl$getXmin())
estp_peter = estimate_pars(peter_m_ln)
peter_m_ln$setPars(estp_peter)
comp_peter = compare_distributions(peter_m_pl, peter_m_ln)
comp_peter[2]
comp_peter[1]
```

```{r}
data <- read.csv(file = 'Allison.csv')
allison_m_pl <- displ$new(data$count)
allison_estpl <- estimate_xmin(allison_m_pl)
allison_m_pl$setXmin(allison_estpl)
allison_m_ln <- dislnorm$new(data$count)
allison_estln <-estimate_xmin(allison_m_ln)
allison_m_ln$setXmin(allison_estln)
allison_m_pois <-dispois$new(data$count)
allison_est_pois <-estimate_xmin(allison_m_pois)
allison_m_pois$setXmin(allison_est_pois)
allison_m_exp = disexp$new(data$count)
allison_est_exp <- estimate_xmin(allison_m_exp)
allison_m_exp$setXmin(allison_est_exp)
plot(allison_m_ln)
lines(allison_m_pl, col = 'red')
lines(allison_m_ln, col = 'green')
lines(allison_m_pois, col = 'blue')
lines(allison_m_exp, col = 'purple')
```

```{r}
allison_bs_pln = bootstrap_p(allison_m_ln)
allison_bs_pln[1]
allison_bs_ppl = bootstrap_p(allison_m_pl)
allison_bs_ppl[1]
allison_m_ln$setXmin(allison_m_pl$getXmin())
estp_allison = estimate_pars(allison_m_ln)
allison_m_ln$setPars(estp_allison)
comp_allison = compare_distributions(allison_m_pl, allison_m_ln)
comp_allison[2]
comp_allison[1]
```

```{r}
data <- read.csv(file = 'April.csv')
april_m_pl <- displ$new(data$count)
april_estpl <- estimate_xmin(april_m_pl)
```

```
april_m_pl$setXmin(april_estpl)
april_m_ln <- dislnorm$new(data$count)
april_estln <-estimate_xmin(april_m_ln)
april_m_ln$setXmin(april_estln)
april_m_pois <-dispois$new(data$count)
april_est_pois <-estimate_xmin(april_m_pois)
april_m_pois$setXmin(april_est_pois)
april_m_exp = disexp$new(data$count)
april_est_exp <- estimate_xmin(april_m_exp)
april_m_exp$setXmin(april_est_exp)
plot(april_m_ln)
lines(april_m_pl, col = 'red')
lines(april_m_ln, col = 'green')
lines(april_m_pois, col = 'blue')
lines(april_m_exp, col = 'purple')
```
```{r}
data <- read.csv(file = 'Sarah.csv')
sarah_m_pl <- displ$new(data$count)
sarah_estpl <- estimate_xmin(sarah_m_pl)
sarah_m_pl$setXmin(sarah_estpl)
sarah_m_ln <- dislnorm$new(data$count)
sarah_estln <-estimate_xmin(sarah_m_ln)
sarah_m_ln$setXmin(sarah_estln)
sarah_m_pois <-dispois$new(data$count)
sarah_est_pois <-estimate_xmin(sarah_m_pois)
sarah_m_pois$setXmin(sarah_est_pois)
sarah_m_exp = disexp$new(data$count)
sarah_est_exp <- estimate_xmin(sarah_m_exp)
sarah_m_exp$setXmin(sarah_est_exp)
plot(sarah_m_ln)
lines(sarah_m_pl, col = 'red')
lines(sarah_m_ln, col = 'green')
lines(sarah_m_pois, col = 'blue')
lines(sarah_m_exp, col = 'purple')
legend("topright", legend = c("power law", "log normal", "poisson",
"exponential"),
       col = c("red","green","blue","purple"),pch=0.6, pt.cex =
0.6,cex=0.5)
```

```{r}
Sarah <- read.csv('Sarah.csv')
y <- Sarah$count
x <- Sarah$rank
fml <- lm(log10(y)~log10(x))
summary(fml)
ffml <-lm(log(x)~log(y))
summary(ffml)
```

```{r}
fraser <- read.csv('Fraser.csv')
fy <- fraser$count
fx <- fraser$rank
ffml <- lm(log10(fy)~log10(fx))
summary(ffml)
```

```{r}
fffml <- lm(log(fx)~log(fy))
summary(fffml)
```

```{r}
addddam <- read.csv('Adam.csv')
y <- addddam$count
x <- addddam$rank
fml <- lm(log10(y)~log10(x))
summary(fml)
```

```{r}
fmll <- lm(log10(x) ~log10(y))
summary(fmll)
```