PoCS Assignment 2

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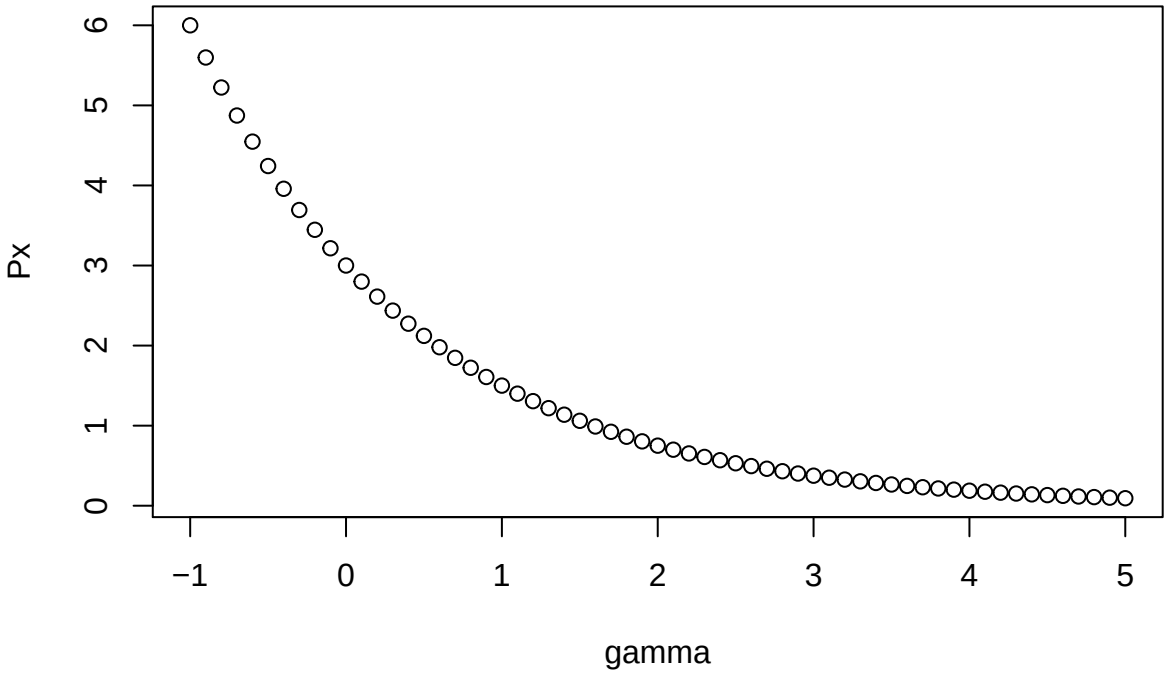
September 11, 2018

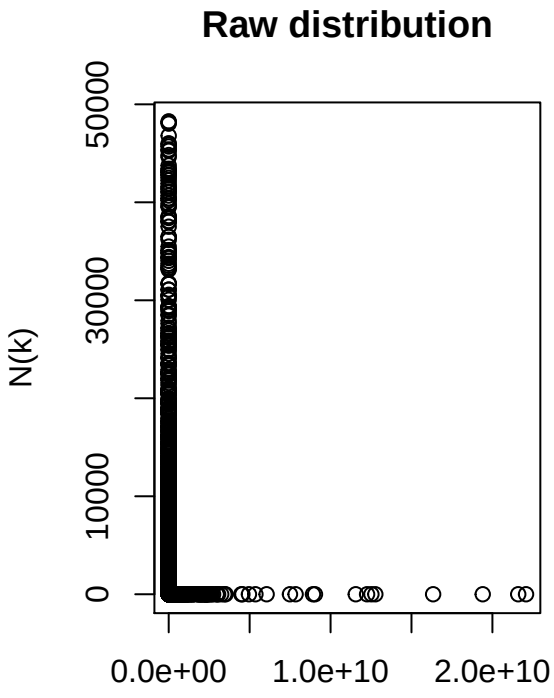
PoCS Assignment github repo: https://github.com/alexburn17/BurnhamPoCS

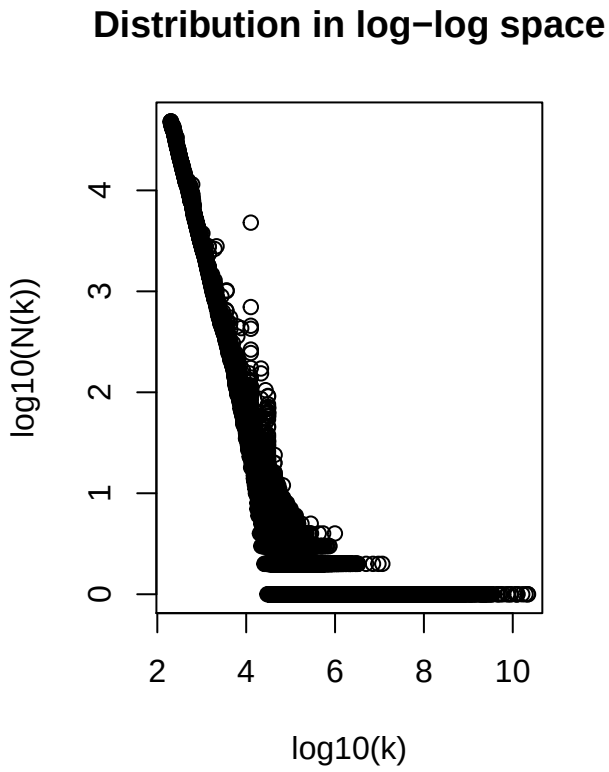
Worked with:

#1)




```
## [1] 19.5929
```





#6

#7

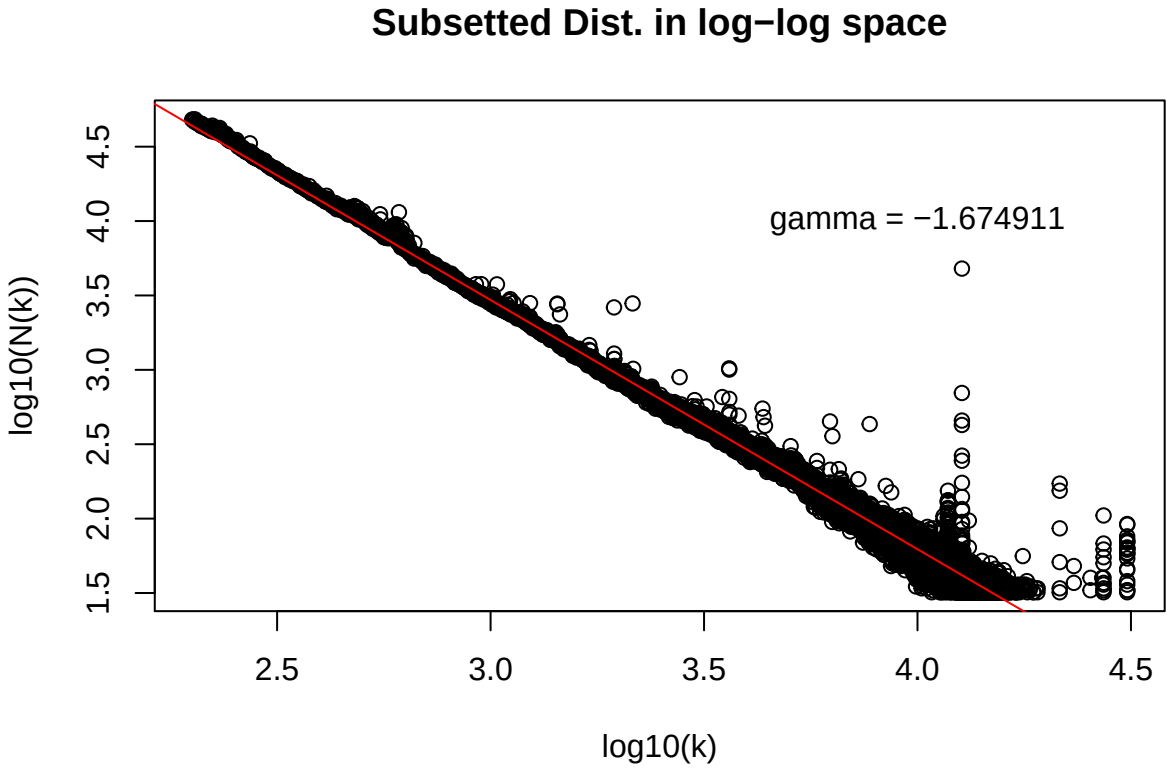
```
# subset the data removing parts of figure that are below 1.5 (Nk)
wordsTrim <- words[words$logNk>1.5,]

# linear regression of subsetted data
mod <- lm(wordsTrim$logNk~wordsTrim$logk)

# plot
plot(y=wordsTrim$logNk, x=wordsTrim$logk,  ylab = "log10(N(k))", xlab = "log10(k)", main = "Subsetted D
abline(mod, col = "red", size=3)
```

```
## Warning in int_abline(a = a, b = b, h = h, v = v, untf = untf, ...): "size"
## is not a graphical parameter
```

```
text(x=4, y=4, "gamma = -1.674911")
```




```
# summarize model: gamma = -1.674911
summary(mod)
```

```
##
## Call:
## lm(formula = wordsTrim$logNk ~ wordsTrim$logk)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.25577 -0.03196 -0.00368  0.02729  2.06061
##
## Coefficients:
##                  Estimate Std. Error t value Pr(>|t|)
## (Intercept)      8.493782   0.006223    1365   <2e-16 ***
## wordsTrim$logk -1.674911   0.001652   -1014   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.07357 on 13991 degrees of freedom
## Multiple R-squared:  0.9866, Adjusted R-squared:  0.9866
## F-statistic: 1.027e+06 on 1 and 13991 DF,  p-value: < 2.2e-16
```

#8

```
mean(words$X1)
```

```
## [1] 56.74207
```

```
sd(words$X1)
```

```
## [1] 909.5754
```