Untitled

April 26, 2018

1 Reamostragem e Simulação

```
In [1]: # Jailson Leocadio
        # Exercício 1

        eutad = read.table("palmadulto.txt", header=TRUE)

        dist = matrix(NA, nrow=102, ncol=102)

        for (i in 1:101) {
                for (j in (i+1):102) {
                        difx2 = (eutad$gx[i] - eutad$gx[j]) ^ 2
                dify2 = (eutad$gy[i] - eutad$gy[j]) ^ 2
                dist[i,j] = sqrt(difx2 + dify2)
                dist[j,i] = sqrt(difx2 + dify2)
            }
        }

        nn  = apply(dist, 1, min, na.rm=TRUE)
        mnn = mean(nn)

        vt = rep(NA, 1000)
        vt[1] = mnn

        for (k in 2:1000) {
                xsim = round(runif(nrow(eutad), 0, 320), 0)
                ysim = round(runif(nrow(eutad), 0, 320), 0)

                mxy = matrix(NA, ncol=nrow(eutad), nrow=nrow(eutad))

                for (l in 1:(nrow(eutad) - 1)) {
                    for (m in (l+1):nrow(eutad)) {
                            mxy[l,m] = sqrt( ((xsim[l] - xsim[m]) ^ 2) +
                                ((ysim[l] - ysim[m]) ^ 2) )
                            mxy[m,l] = sqrt( ((xsim[l] - xsim[m]) ^ 2) +
                                ((ysim[l] - ysim[m]) ^ 2) )
                    }
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        }

            vt[k] = mean(apply(mxy, 1, min, na.rm=TRUE))
    }

    hist(vt, main="", xlab="Distâncias médias geradas as acaso", ylab="Frequência")
    abline(v=vt[1], col="red", lty=2)

    pvalue = (sum(abs(vt) >= abs(vt[1])))/length(vt)
```
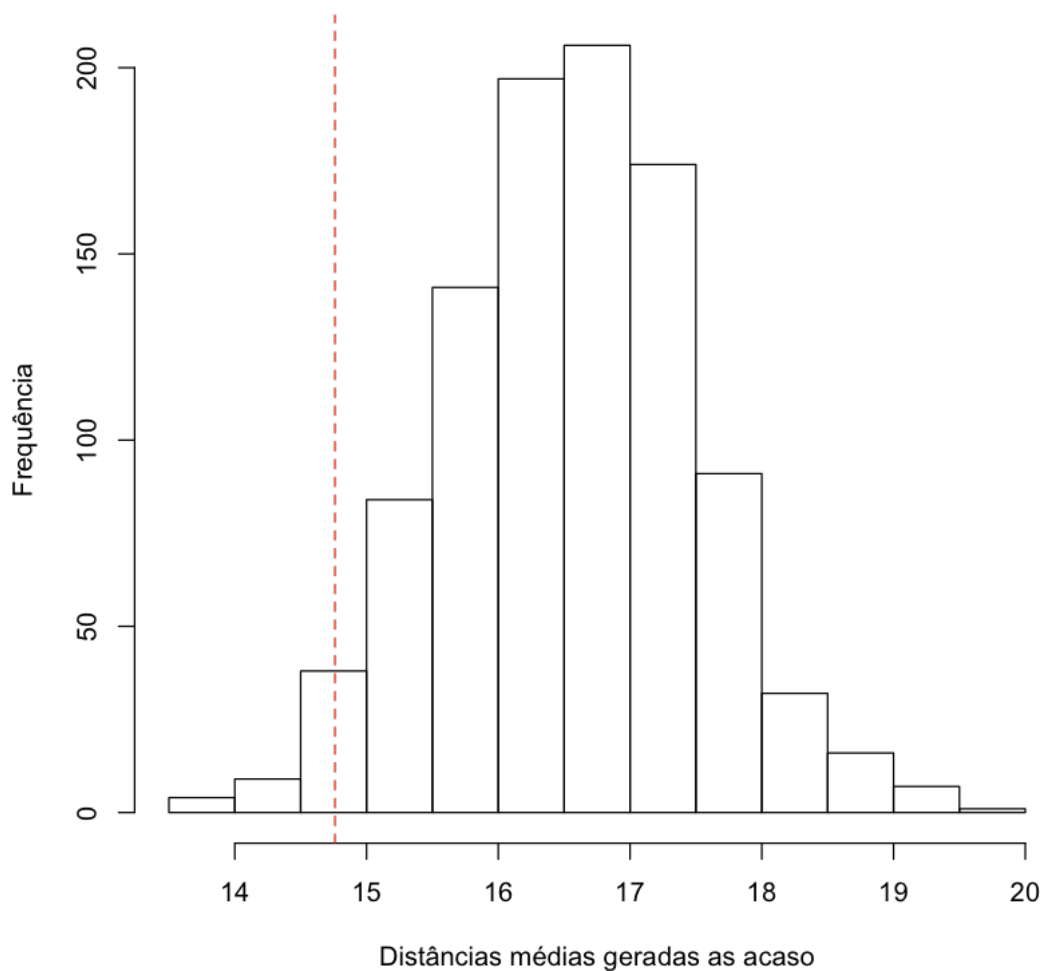

Distâncias médias geradas as acaso

In [2]: # Exercício 2

```
    animais = read.table("animais.txt", sep=";", header=TRUE, dec=",")
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animais = animais[complete.cases(animais),]

x = log(animais$body) - mean(log(animais$body))
y = log(animais$brain) - mean(log(animais$brain))

beta = sum(x * y) / sum(x ^ 2)

vt = rep(NA, 1000)
vt[1] = beta

for (i in 2:999) {
        sim_brain = sample(animais$brain)

        x = log(animais$body) - mean(log(animais$body))
        y = log(sim_brain) - mean(log(sim_brain))

        vt[i] = sum(x * y) / sum(x ^ 2)
}

hist(vt, main="", xlab="Inclinações médias geradas as acaso", ylab="Frequência")
abline(v=vt[1], col="red", lty=2)

pvalue = (sum(abs(vt) >= abs(vt[1]))) / length(vt)
```

Frequência

Inclinações médias geradas as acaso