Dendograma punto extra

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Dendrograma

Instalar paquete

```
install.packages("cluster.datasets")
library(cluster.datasets)
```

Matriz de datos

```
data("mammal.dentition")
```

Se renombra la matriz

```
MD=mammal.dentition
MD
```

```
##                name top.i bottom.i top.c bottom.c top.pm bottom.pm top.m
## 1           Opossum     5        4     1        1      3         3     4
## 2  Hairy tail mole     3        3     1        1      4         4     3
## 3       Common mole     3        2     1        0      3         3     3
## 4    Star nose mole     3        3     1        1      4         4     3
## 5         Brown bat     2        3     1        1      3         3     3
## 6  Silver hair bat     2        3     1        1      2         3     3
## 7         Pigmy bat     2        3     1        1      2         2     3
## 8         House bat     2        3     1        1      1         2     3
## 9           Red bat     1        3     1        1      2         2     3
## 10        Hoary bat     1        3     1        1      2         2     3
## 11    Lump nose bat     2        3     1        1      2         3     3
## 12        Armadillo     0        0     0        0      0         0     8
## 13             Pika     2        1     0        0      2         2     3
## 14 Snowshoe rabbit     2        1     0        0      3         2     3
## 15           Beaver     1        1     0        0      2         1     3
## 16           Marmot     1        1     0        0      2         1     3
## 17        Groundhog     1        1     0        0      2         1     3
## 18      Prairie Dog     1        1     0        0      2         1     3
## 19 Ground Squirrel     1        1     0        0      2         1     3
## 20         Chipmunk     1        1     0        0      2         1     3
## 21    Gray squirrel     1        1     0        0      1         1     3
## 22     Fox squirrel     1        1     0        0      1         1     3
## 23    Pocket gopher     1        1     0        0      1         1     3
## 24     Kangaroo rat     1        1     0        0      1         1     3
```

```
## 25        Pack rat     1        1     0        0      0        0     3
## 26     Field mouse     1        1     0        0      0        0     3
## 27         Muskrat     1        1     0        0      0        0     3
## 28       Black rat     1        1     0        0      0        0     3
## 29     House mouse     1        1     0        0      0        0     3
## 30       Porcupine     1        1     0        0      1        1     3
## 31      Guinea pig     1        1     0        0      1        1     3
## 32          Coyote     1        3     1        1      4        4     3
## 33            Wolf     3        3     1        1      4        4     2
## 34             Fox     3        3     1        1      4        4     2
## 35            Bear     3        3     1        1      4        4     2
## 36       Civet cat     3        3     1        1      4        4     2
## 37         Raccoon     3        3     1        1      4        4     3
## 38          Marten     3        3     1        1      4        4     1
## 39          Fisher     3        3     1        1      4        4     1
## 40          Weasel     3        3     1        1      3        3     1
## 41            Mink     3        3     1        1      3        3     1
## 42          Ferrer     3        3     1        1      3        3     1
## 43       Wolverine     3        3     1        1      4        4     1
## 44          Badger     3        3     1        1      3        3     1
## 45           Skunk     3        3     1        1      3        3     1
## 46     River otter     3        3     1        1      4        3     1
## 47       Sea otter     3        2     1        1      3        3     1
## 48          Jaguar     3        3     1        1      3        2     1
## 49          Ocelot     3        3     1        1      3        2     1
## 50          Cougar     3        3     1        1      3        2     1
## 51            Lynx     3        3     1        1      3        2     1
## 52        Fur seal     3        2     1        1      4        4     1
## 53        Sea lion     3        2     1        1      4        4     1
## 54          Walrus     1        0     1        1      3        3     0
## 55       Grey seal     3        2     1        1      3        3     2
## 56   Elephant seal     2        1     1        1      4        4     1
## 57         Peccary     2        3     1        1      3        3     3
## 58             Elk     0        4     1        0      3        3     3
## 59            Deer     0        4     0        0      3        3     3
## 60           Moose     0        4     0        0      3        3     3
## 61        Reindeer     0        4     1        0      3        3     3
## 62        Antelope     0        4     0        0      3        3     3
## 63           Bison     0        4     0        0      3        3     3
## 64   Mountain goat     0        4     0        0      3        3     3
## 65         Musk ox     0        4     0        0      3        3     3
## 66  Mountain sheep     0        4     0        0      3        3     3
##    bottom.m
## 1         4
## 2         3
## 3         3
## 4         3
## 5         3
## 6         3
## 7         3
## 8         3
## 9         3
## 10        3
## 11        3
```

```
## 12        8
## 13        3
## 14        3
## 15        3
## 16        3
## 17        3
## 18        3
## 19        3
## 20        3
## 21        3
## 22        3
## 23        3
## 24        3
## 25        3
## 26        3
## 27        3
## 28        3
## 29        3
## 30        3
## 31        3
## 32        3
## 33        3
## 34        3
## 35        3
## 36        2
## 37        2
## 38        2
## 39        2
## 40        2
## 41        2
## 42        2
## 43        2
## 44        2
## 45        2
## 46        2
## 47        2
## 48        1
## 49        1
## 50        1
## 51        1
## 52        1
## 53        1
## 54        0
## 55        2
## 56        1
## 57        3
## 58        3
## 59        3
## 60        3
## 61        3
## 62        3
## 63        3
## 64        3
## 65        3
```

```
## 66        3
```

```
head(MD)
```

```
##              name top.i bottom.i top.c bottom.c top.pm bottom.pm top.m bottom.m
## 1         Opossum     5        4     1        1      3         3     4        4
## 2 Hairy tail mole     3        3     1        1      4         4     3        3
## 3     Common mole     3        2     1        0      3         3     3        3
## 4  Star nose mole     3        3     1        1      4         4     3        3
## 5       Brown bat     2        3     1        1      3         3     3        3
## 6 Silver hair bat     2        3     1        1      2         3     3        3
```

Cálculo de la matriz de distancia de Mahalonobis

```
dist.MD<-dist(MD[,2:5])
```

Convertir los resultados del cálculo de la distancia a una matriz de datos y me indique 3 digitos.

```
round(as.matrix(dist.MD)[2:5, 2:5],3)
```

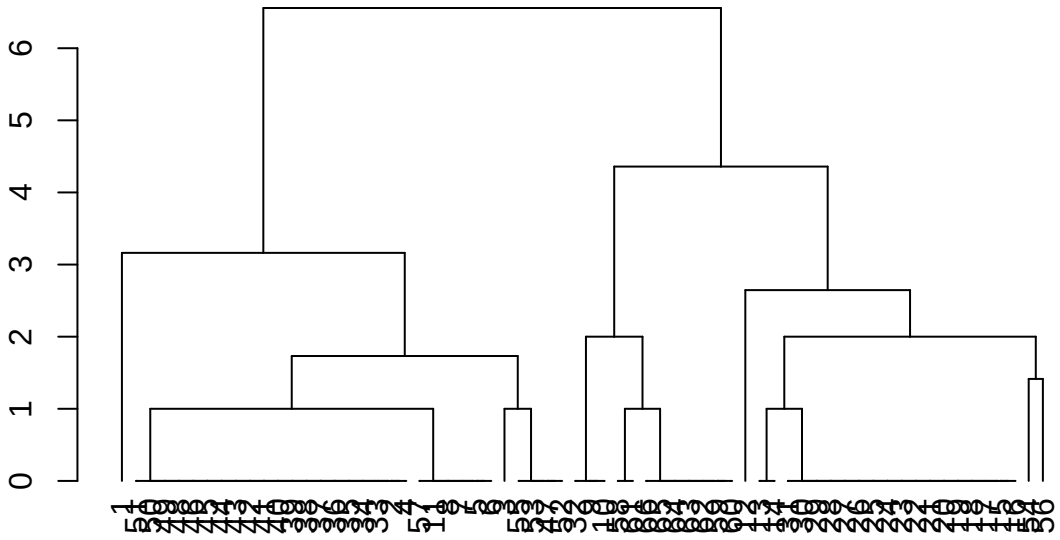
```
##       2     3     4     5
## 2 0.000 1.414 0.000 1.000
## 3 1.414 0.000 1.414 1.732
## 4 0.000 1.414 0.000 1.000
## 5 1.000 1.732 1.000 0.000
```

Cálculo del dendrograma

```
dend.MD<-as.dendrogram(hclust(dist.MD))
```

Generación del dendrograma

```
plot(dend.MD)
```

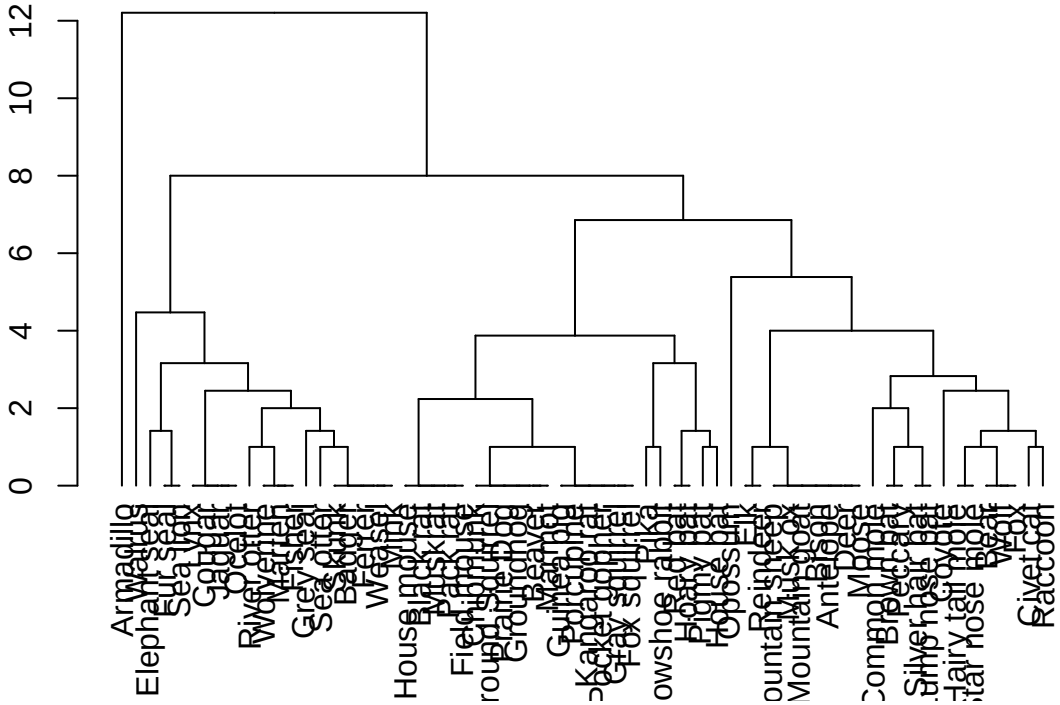


Agregar etiquetas al gráfico

```
MD.nombres=MD
rownames(MD.nombres)= MD.nombres$name
MD.nombres=MD.nombres[,-1]
```

Construimos de nuevo el gráfico

```
plot(as.dendrogram(hclust(dist(MD.nombres))))
```



Modificar el dendrograma

Instalar paquete

```
install.packages("dendextend")
library(dendextend)
```

Guardar las etiquetas en un objeto "L"

```
L=labels(dend.MD)
labels(dend.MD)=MD$name[L]
```

Cambiar el tamaño de las etiquetas

```
dend.MD %>%
  set(what="labels_col", "blue") %>% #Colores etiqueta
  set(what="labels_cex", 0.8) %>%
  plot(main="Para cada animal el n?mero de dientes en cada grupo principal")
```