



Variations autour des boxplots

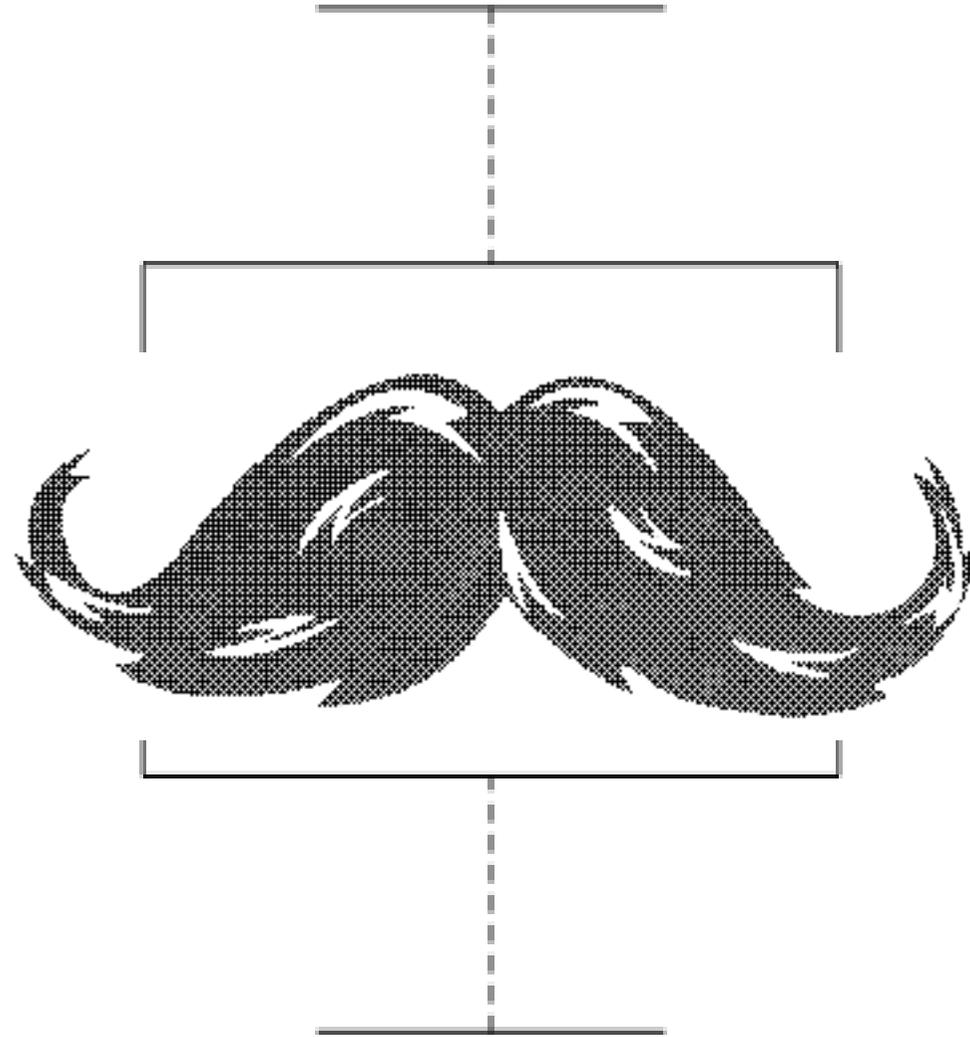
Allowen EVIN

Département Systématique et Evolution

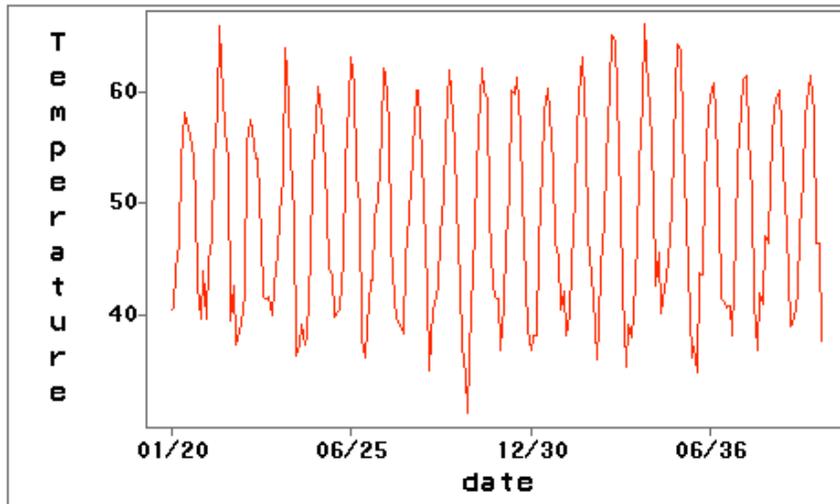
OSEB

evin@mnhn.fr

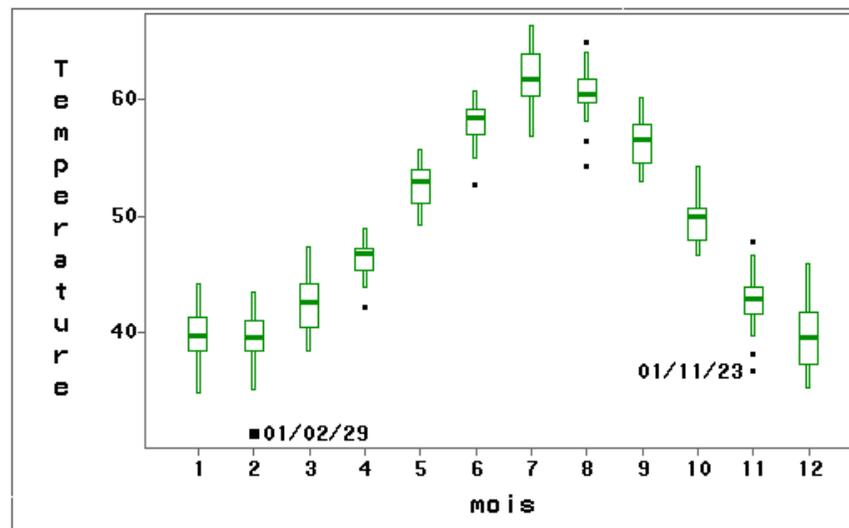
"Variations autour des boîtes à moustaches"



La boîte à moustaches est une traduction de *Box & Whiskers Plot*
Pour représenter schématiquement une distribution.

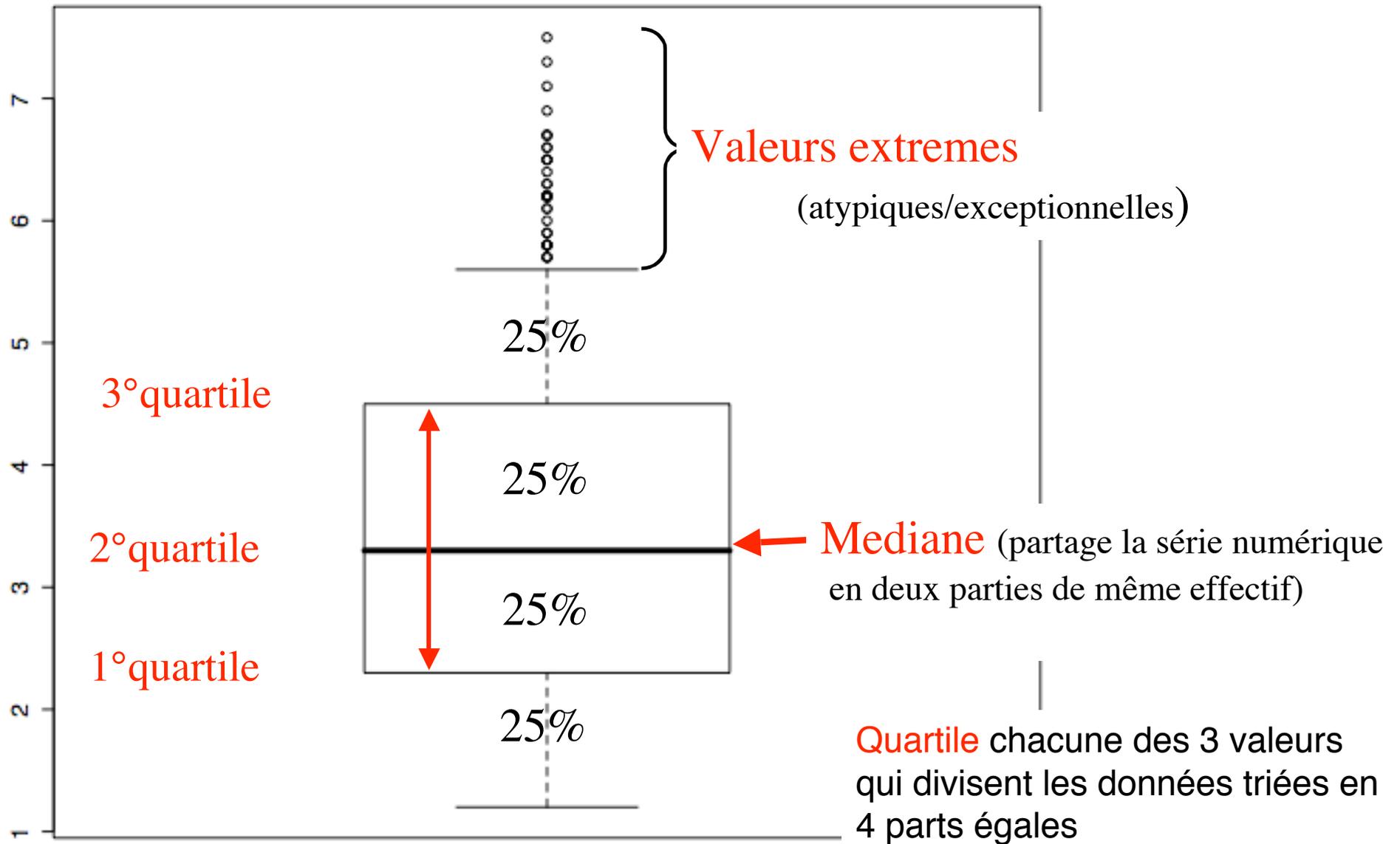


Information résumée/ synthétique



Evolution de la température dans le temps

"Variations autour des boîtes à moustaches"



Les données...

	d[,1]	d[,2]
d	sp	duree
	P.macrobullaris	3.3
	P.austriacus	6.3
	P.macrobullaris	2.1
	P.auritus	2.2
	P.auritus	4.2
	P.auritus	1.5
	P.austriacus	3.2
	P.auritus	1.8
	P.macrobullaris	3.3
	P.auritus	4.3

table(d[,1])

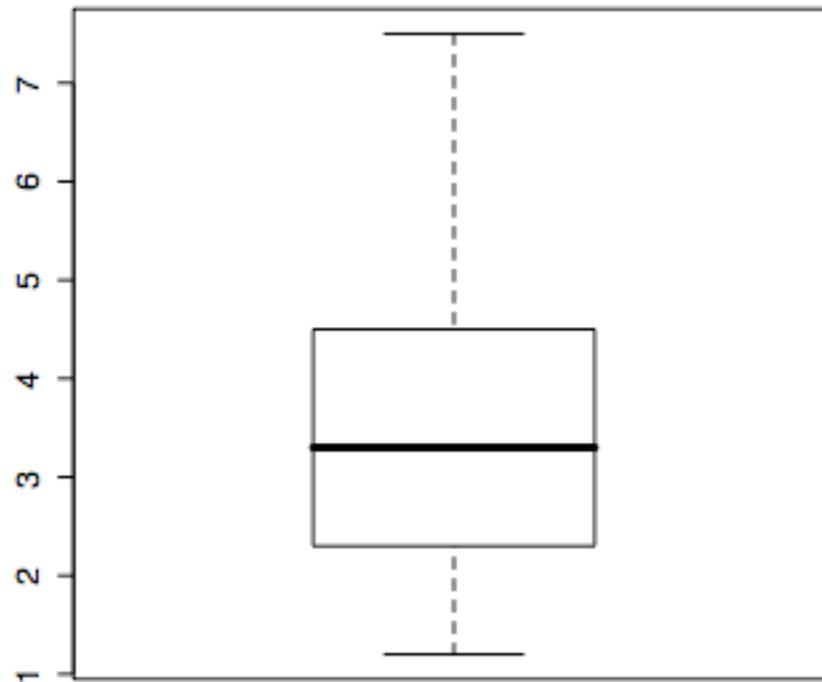
	P.auritus	P.austriacus	P.macrobullaris
N	121	48	129

summary(d[,2])

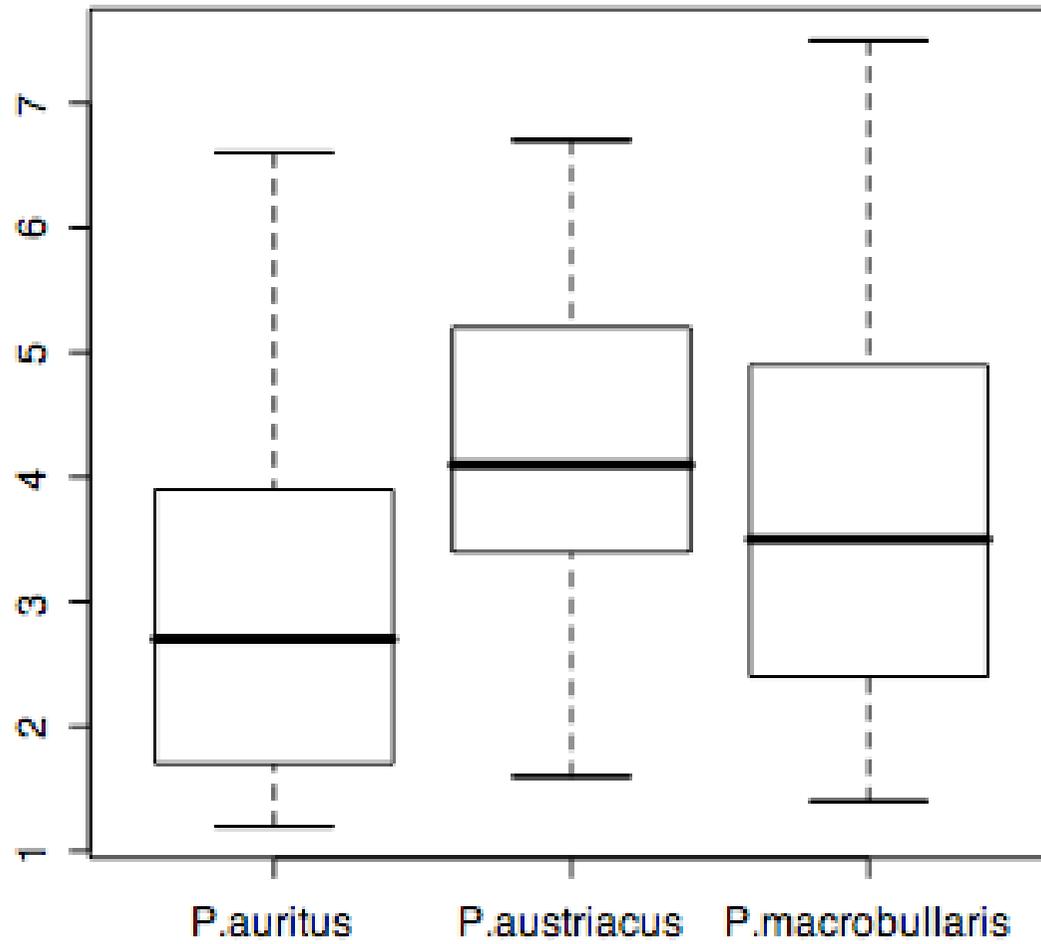
Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
1.20	2.20	3.20	3.35	4.40	7.10

```
boxplot(x, ..., range = 1.5, width = NULL,  
varwidth = FALSE, notch = FALSE, outline =  
TRUE, names, plot = TRUE, border = par("fg"),  
col = NULL, log = "", pars = list(boxwex =  
0.8, staplewex = 0.5, outwex = 0.5),  
horizontal = FALSE, add = FALSE, at = NULL)
```

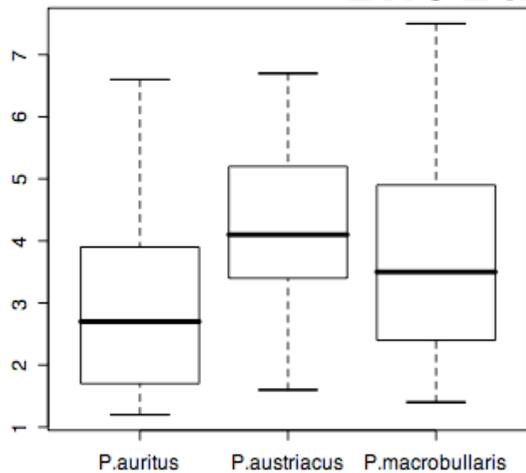
boxplot(d[,2])



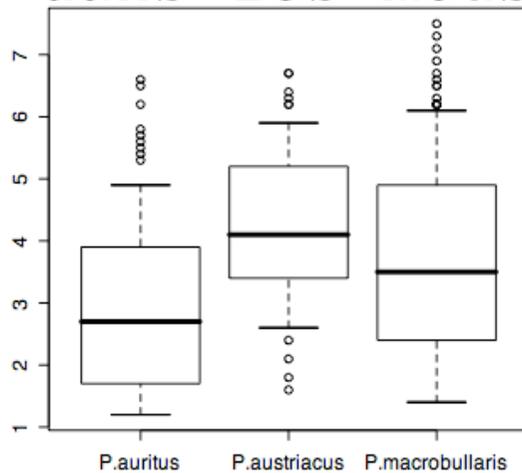
boxplot(d[,2]~d[,1])



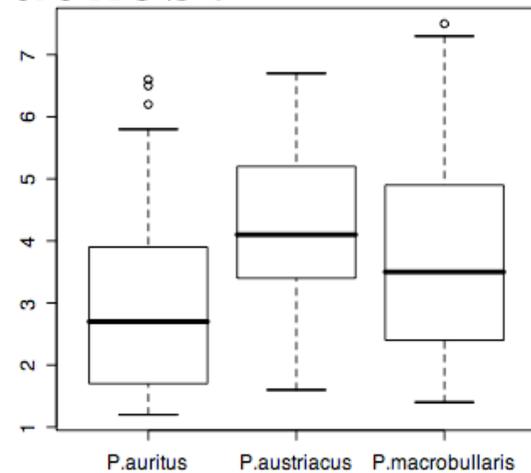
Range: (numeric) gestion des valeurs extrêmes.
 Les valeurs sup/inf à la valeur de range fois
 la valeur de l'interquartile ne sont pas
 incluses dans les moustaches.



Range = 0



Range = 0.5

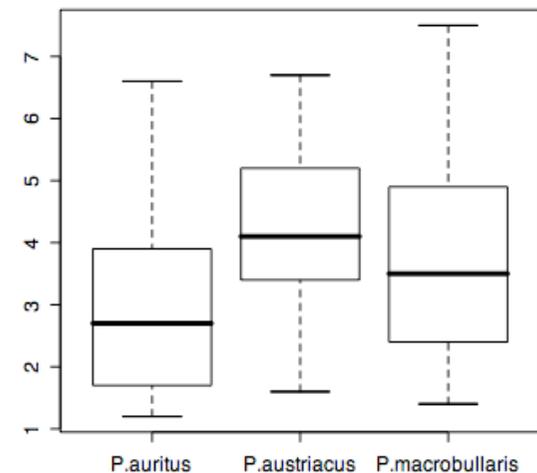


Range = 1

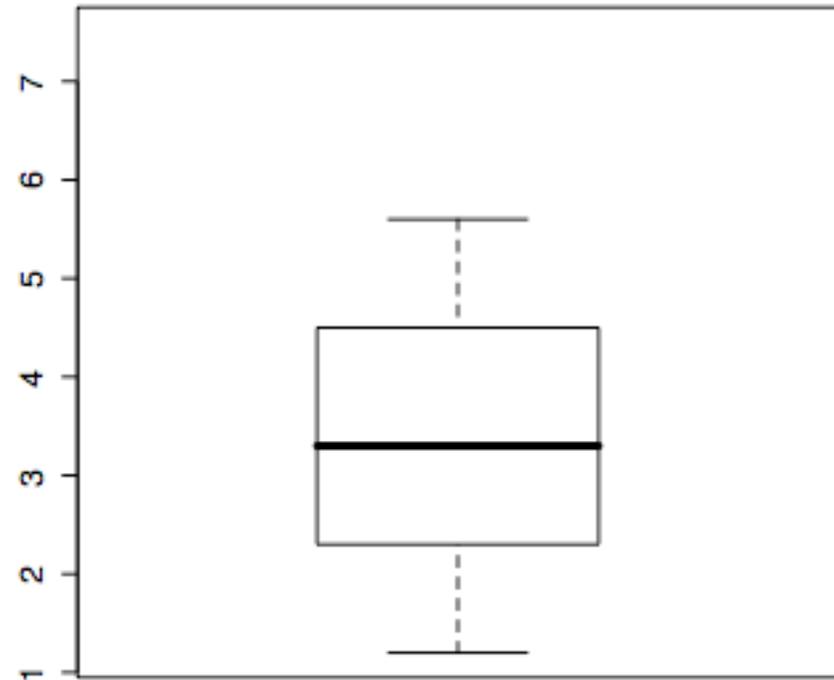
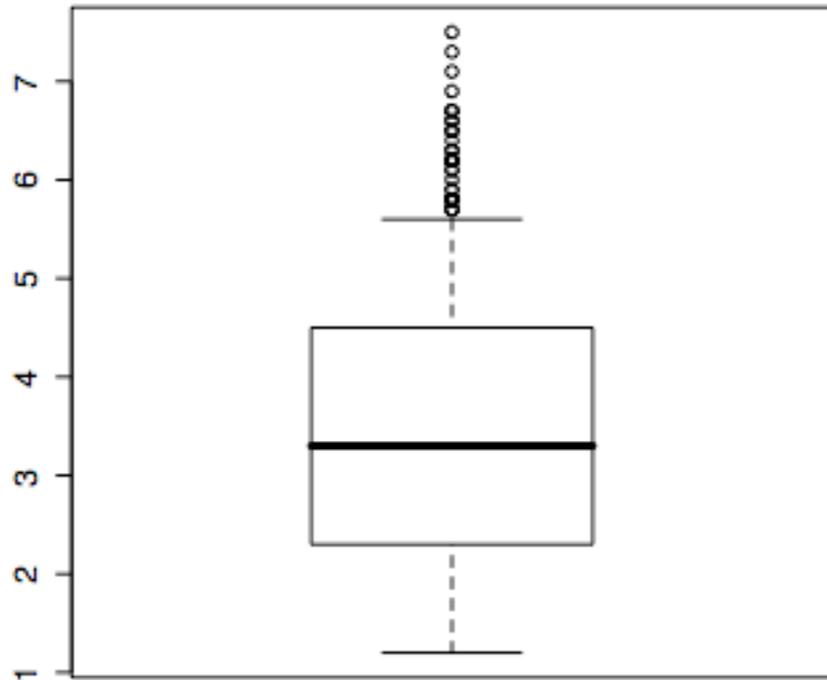
`boxplot(d[,2]~d[,1], range=0)`

Par défaut range = 1.5

Range=0, les moustaches vont jusqu'aux valeurs extrêmes.



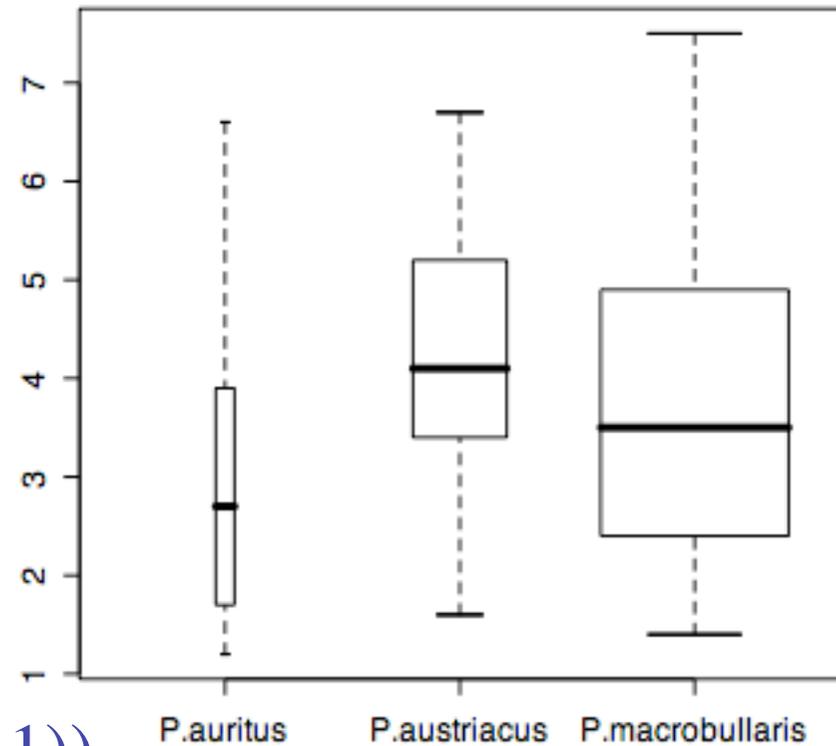
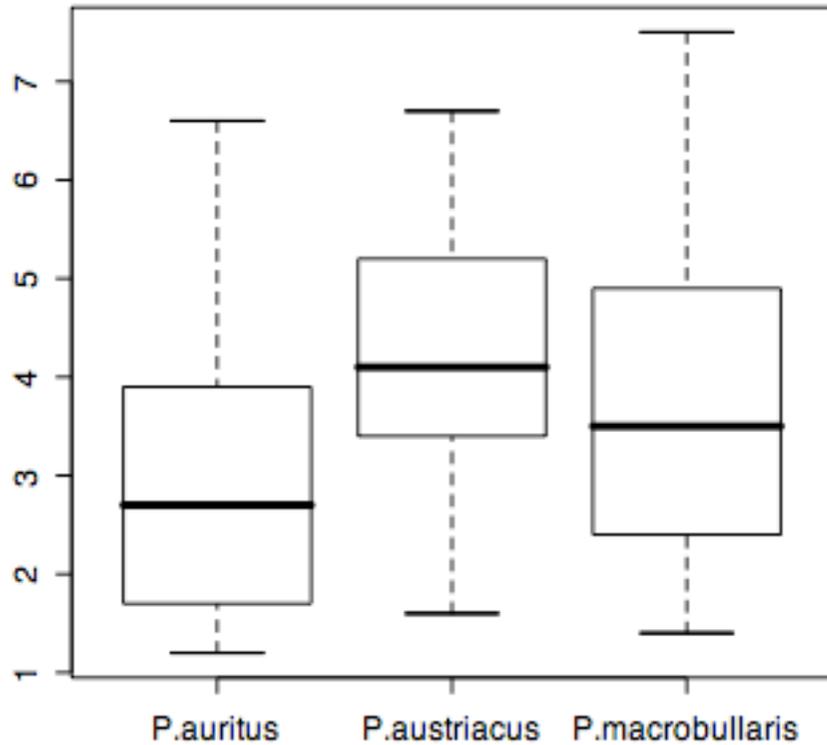
outline: (logique) affichage des valeurs extrêmes.



`boxplot(d[,2], outline=FALSE, range=0.5)`

Par défaut `outline=TRUE`

Width: vecteur de la largeur relative des boites



`boxplot(d[,2]~d[,1], width=c(1,1,1))`

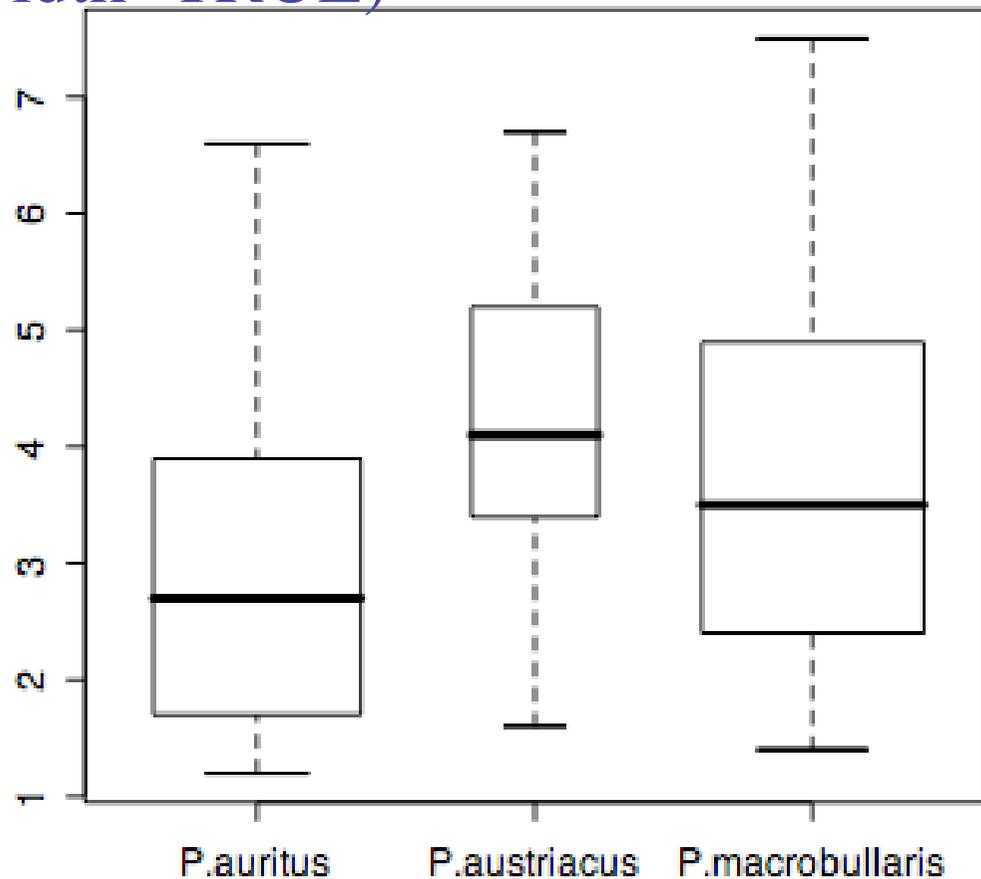
`boxplot(d[,2]~d[,1], width=c(1,5,10))`

Par défaut `width = NULL`

Varwidth: TRUE/FALSE

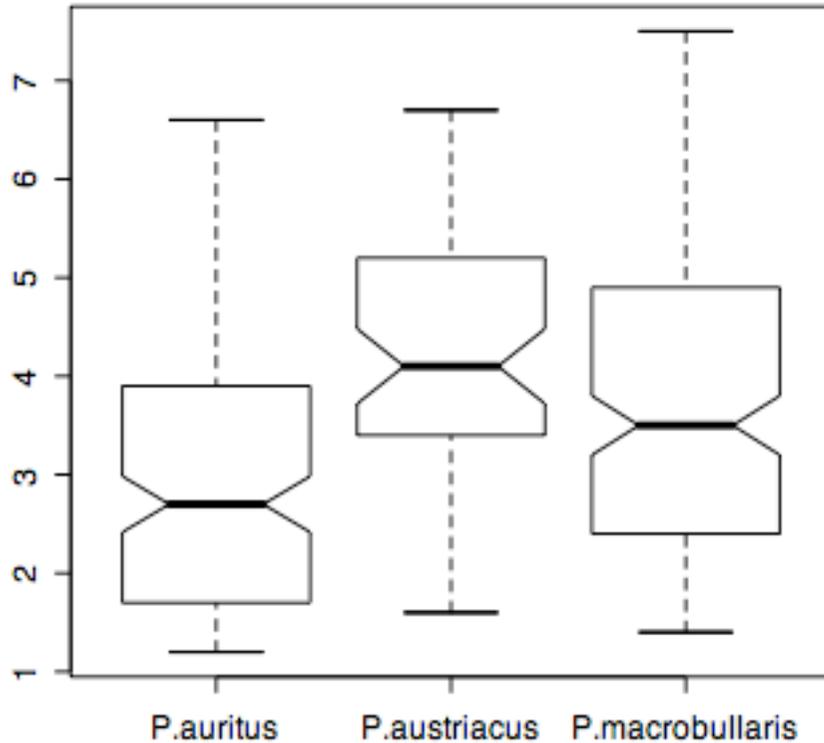
Largeur proportionnelle à la racine carrée du nombre d'observation par groupe

`boxplot(d[,2]~d[,1], varwidth=TRUE)`



Notch: TRUE/FALSE

Si deux notch sont non chevauchant c'est une évidence que leur médianes diffèrent



`boxplot(d[,2]~d[,1], notch=TRUE)`

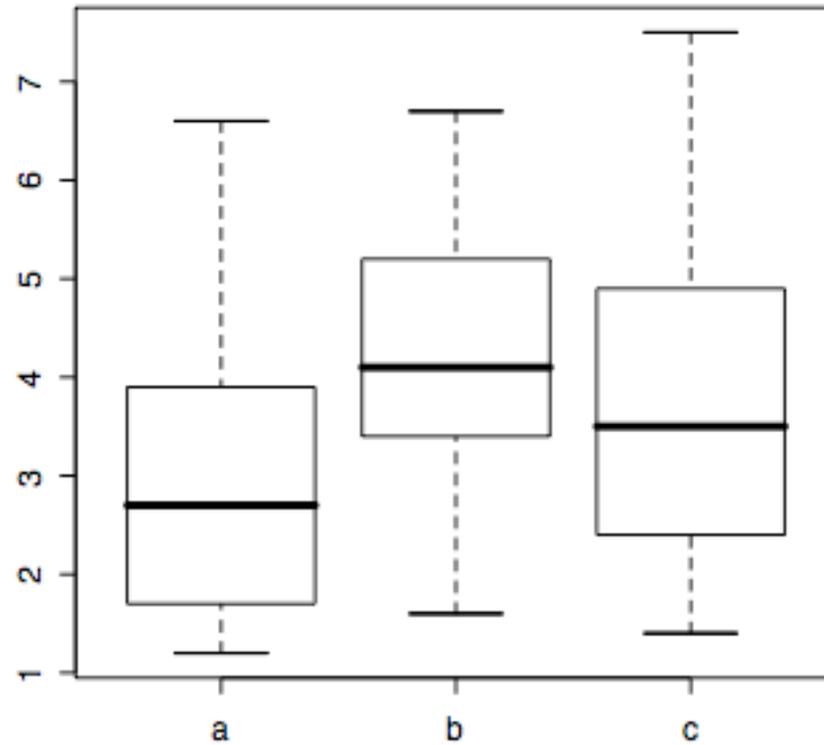
Par défaut notch=FALSE

`pairwise.t.test(d[,2], d[,1], p.adj = "bonferroni")`

	P.auritus	P.austriacus
P.austriacus	1.7e-08	-
P.macrobullaris	1.1e-07	0.14

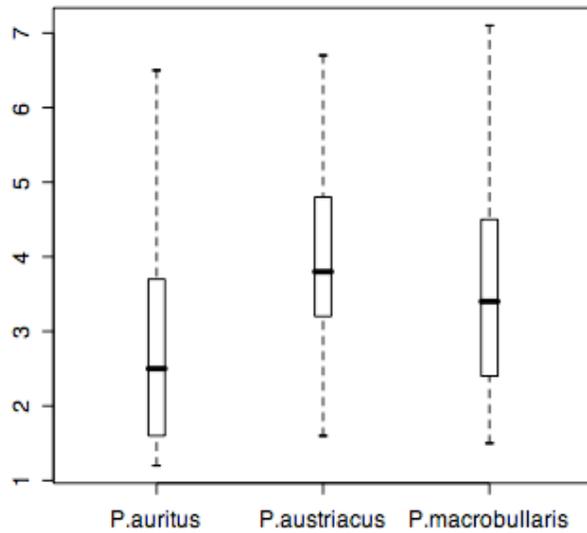
Names: Vecteur de nom des groupes.

```
boxplot(d[,2]~d[,1], names=c("a", "b", "c"))
```

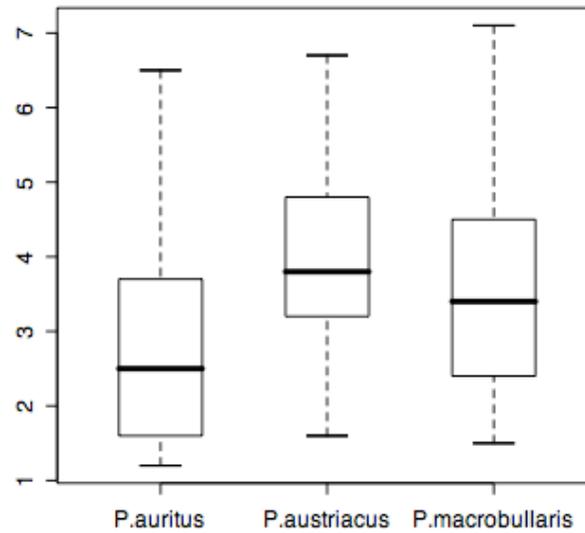


Boxwex: (numeric) proximité entre les boites

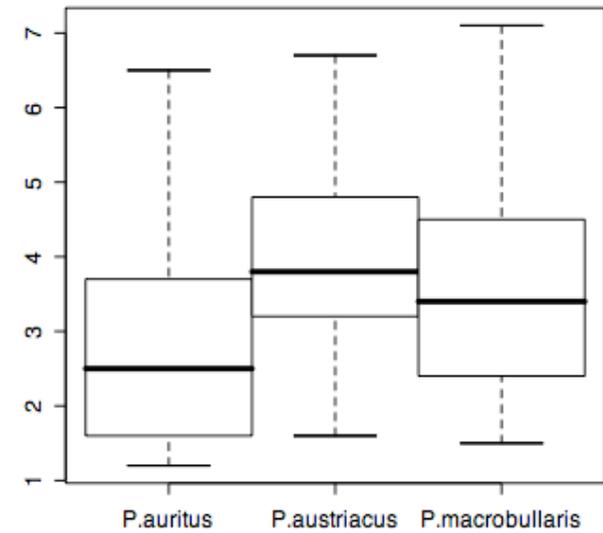
`boxplot(d[,2]~d[,1], boxwex=0.1)`



boxwex=0.1

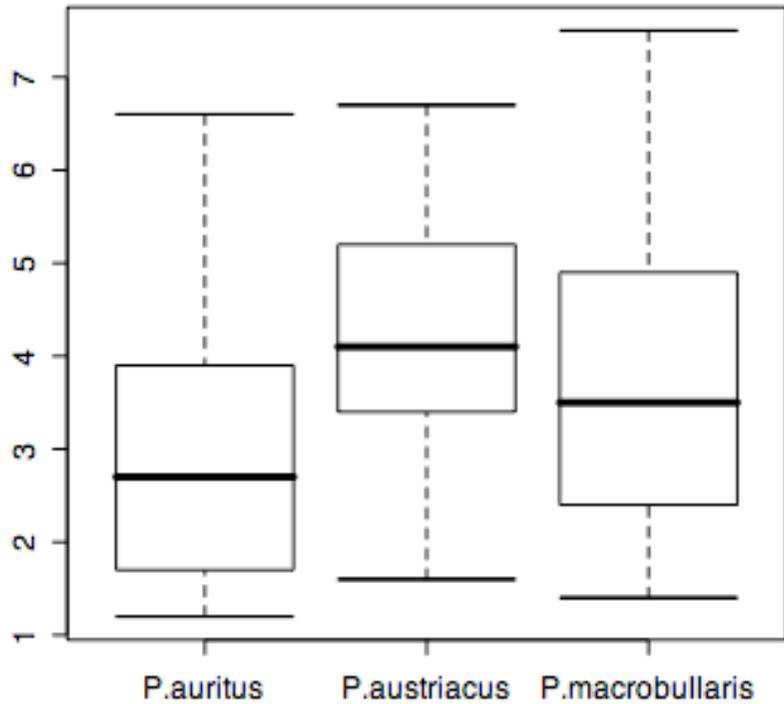


boxwex=0.5

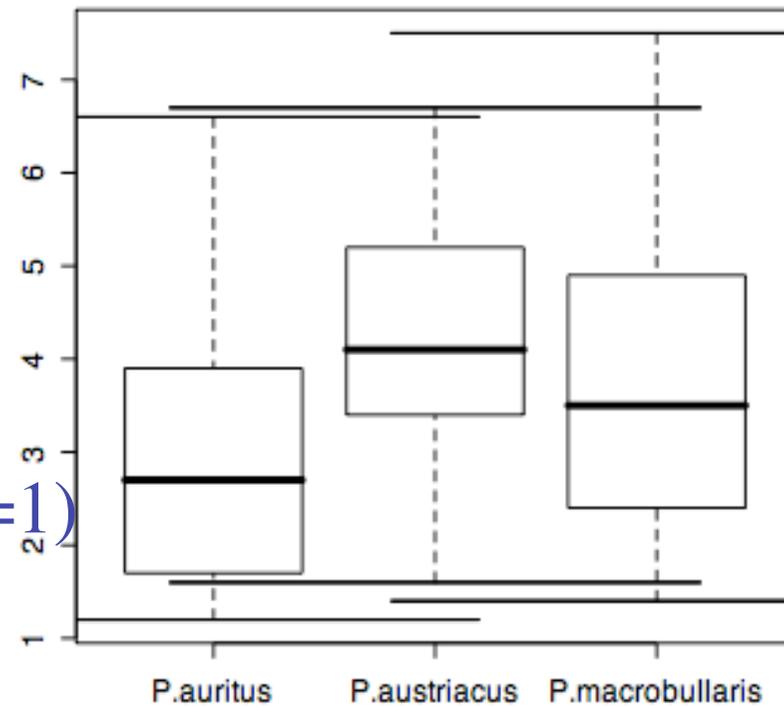


boxwex=1

staplewex: (numeric) largeur des moustaches

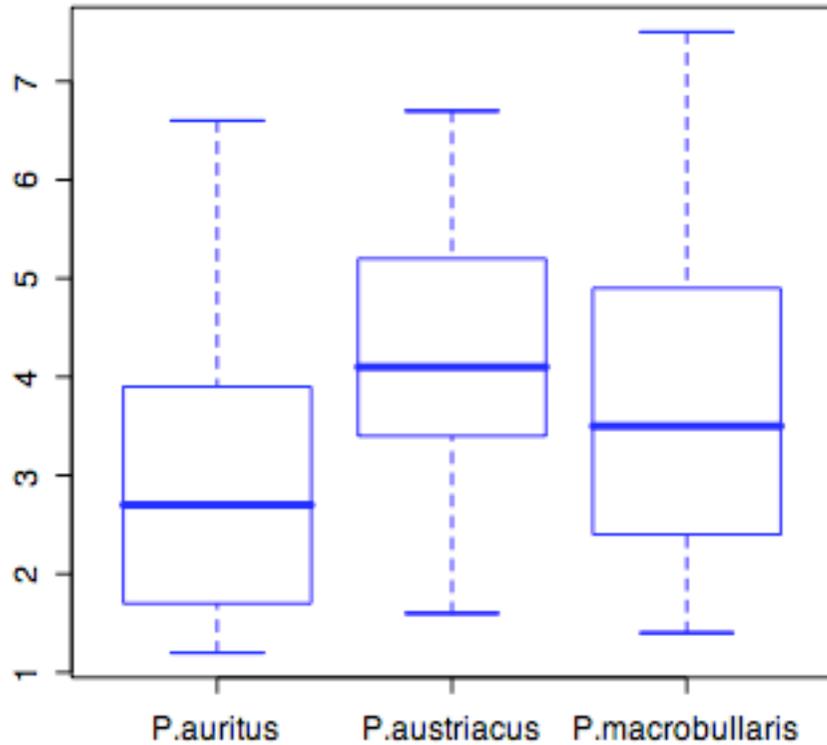


`boxplot(d[,2]~d[,1], staplewex=1)`

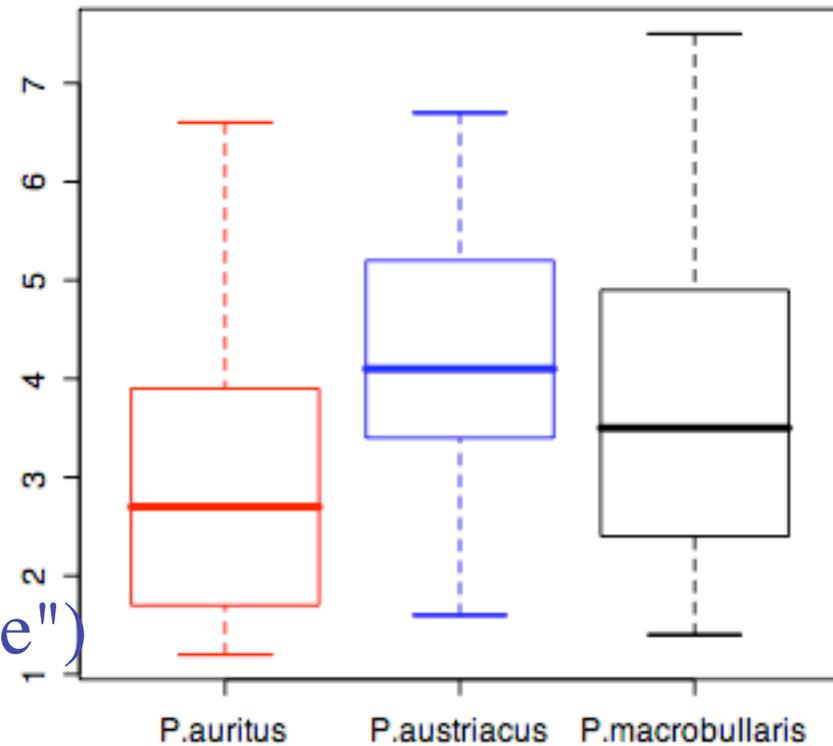


`boxplot(d[,2]~d[,1], staplewex=3)`

Border: (vecteur) couleur de la bordure

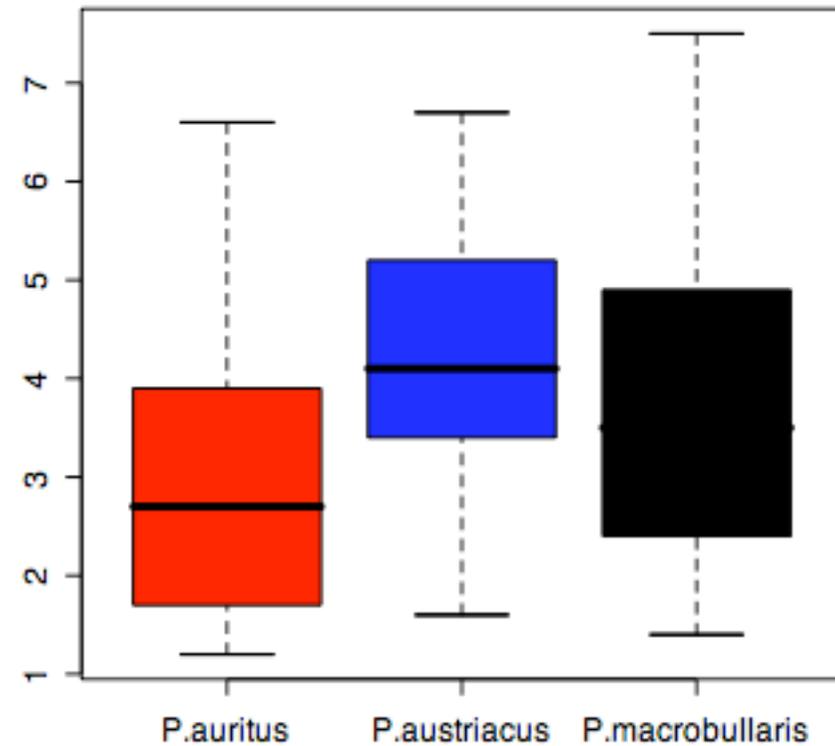
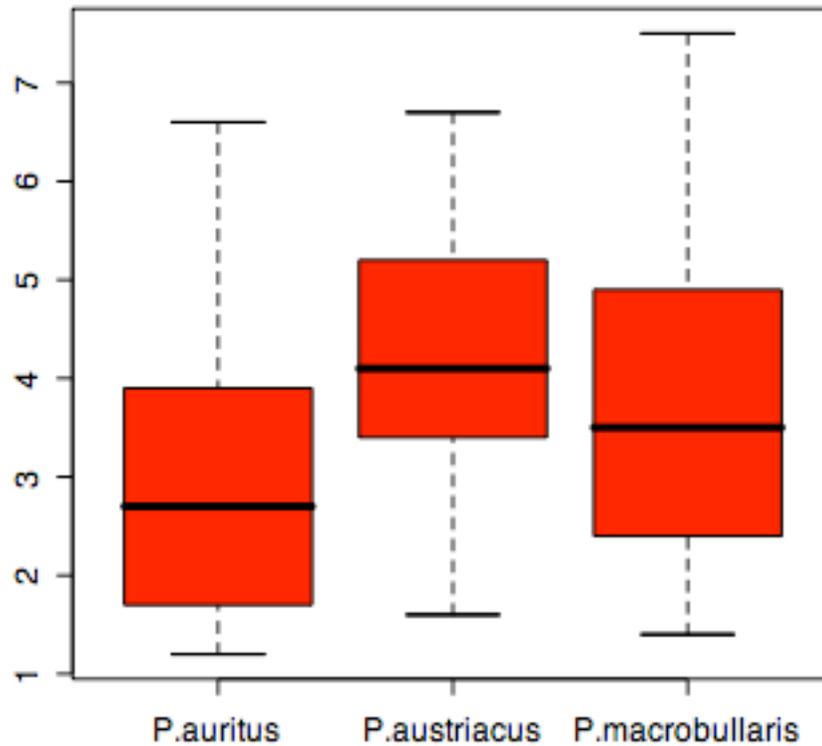


`boxplot(d[,2]~d[,1], border="Blue")`



`boxplot(d[,2]~d[,1], border=c("red", "blue", "black"))`

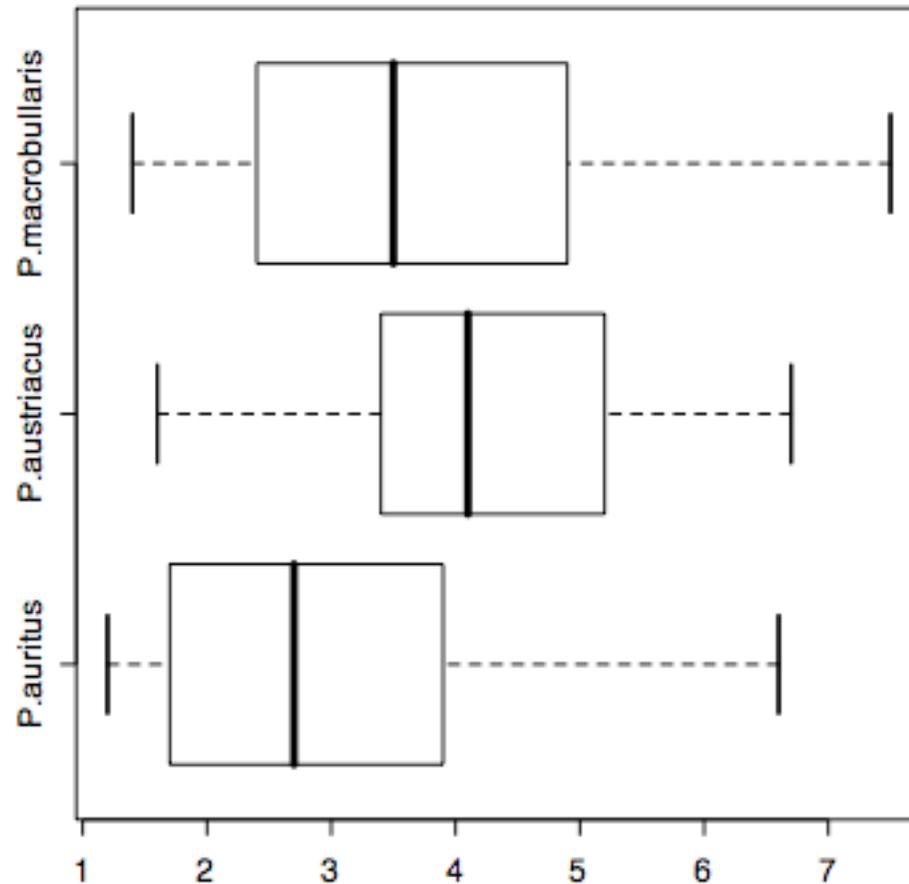
`col:` (vecteur) couleur des boites



```
boxplot(d[,2]~d[,1], col="red")
```

```
boxplot(d[,2]~d[,1], col=c("red", "blue", "black"))
```

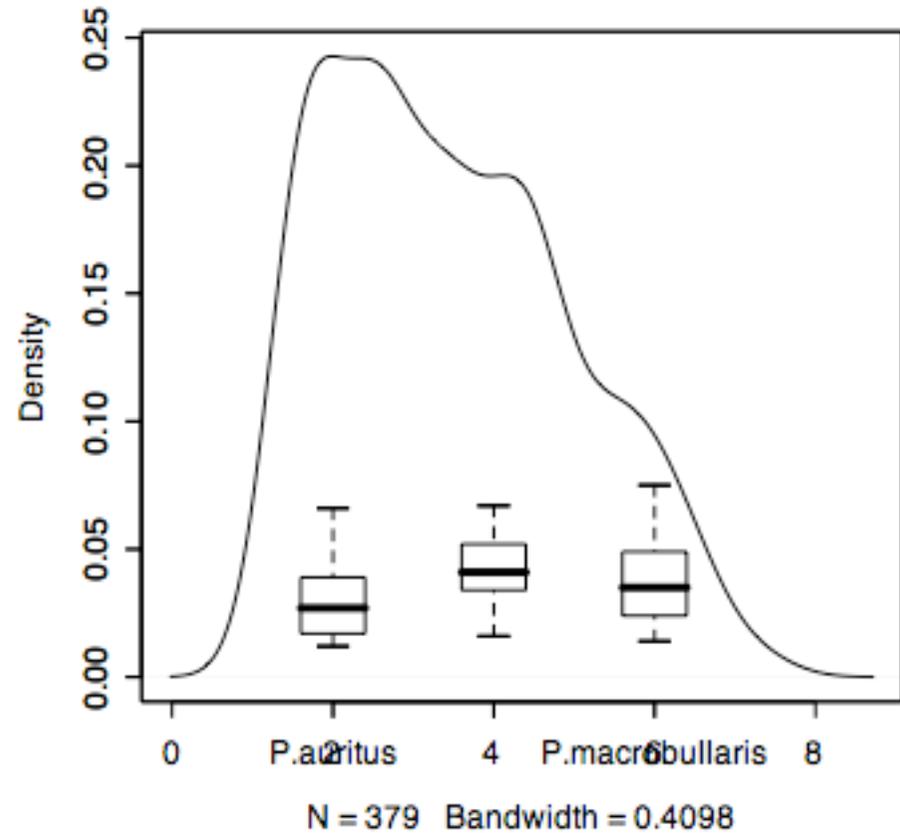
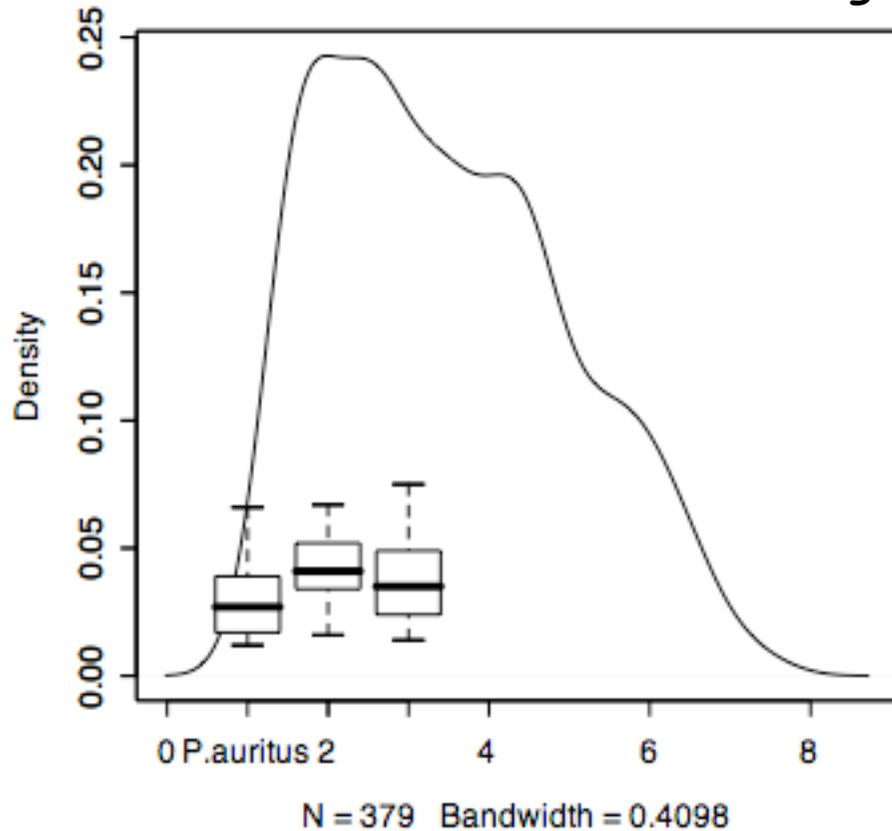
horizontal: (logique) « sens » du graphique



`boxplot(d[,2]~d[,1], horizontal=TRUE)`

Par défaut `horizontal=FALSE`

add: (logique) ajout des boites sur un autre graphe et **at:** (vecteur) localisation des boites sur l'autre graphe



```
plot(density(na.omit(d[,2])))
```

```
boxplot(d[,2]/100~d[,1], add=TRUE)
```

```
boxplot(d[,2]/100~d[,1], add=TRUE, at=c(2,4,6))
```

Par défaut 1,2,3

Pour mettre de l'ordre

```
levels(d[,1])
```

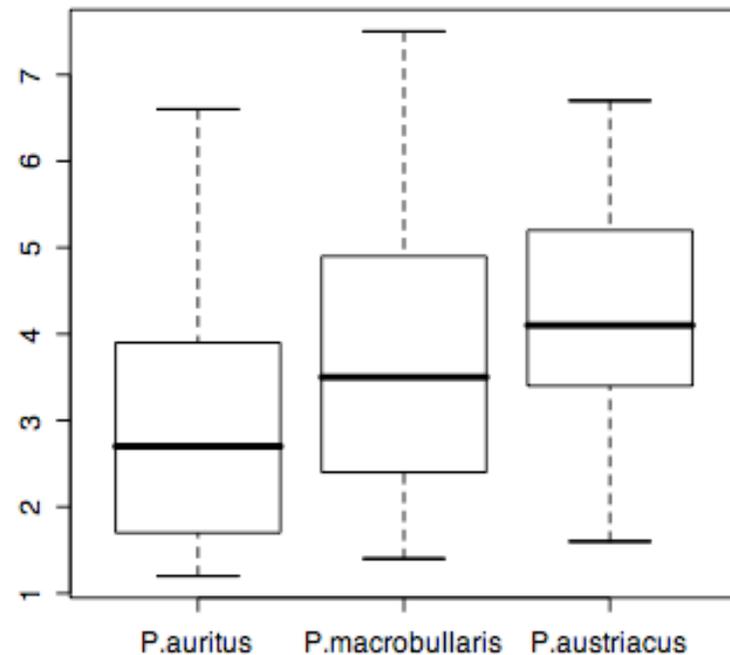
```
[1] "P.auritus" "P.austriacus" "P.macrobullaris" »
```

```
newgp<-factor(d[,1], levels=c("P.auritus", "P.macrobullaris",  
"P.austriacus"))
```

```
levels(newgp)
```

```
[1] "P.auritus" "P.macrobullaris" "P.austriacus"
```

```
boxplot(d[,2]~newgp)
```



```
croi<-sort(meangr(d[,2], d[,1]), index.return=TRUE)
```

```
newgp<-factor(d[,1], levels=levels(d[,1])[croi$ix])
```

Petites améliorations

```
boxplot(d[,2]~d[,1], main="le titre", sub="sous-titre",  
xlab="nom d'sp", ylab="Durée")
```

