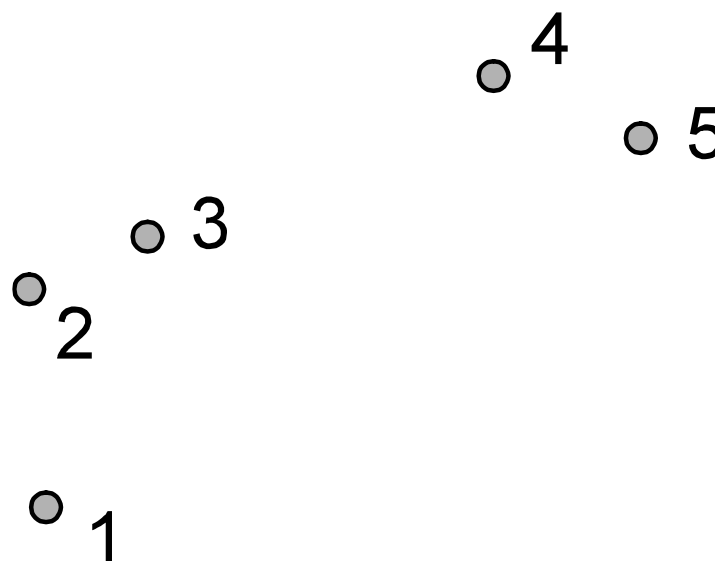
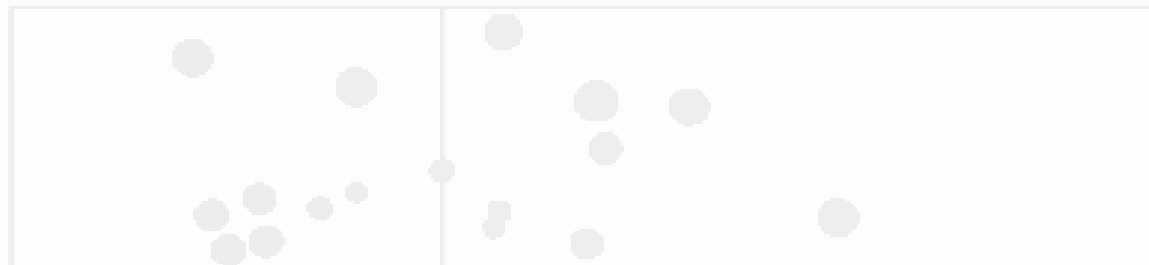


# Classification ascendante hiérarchique

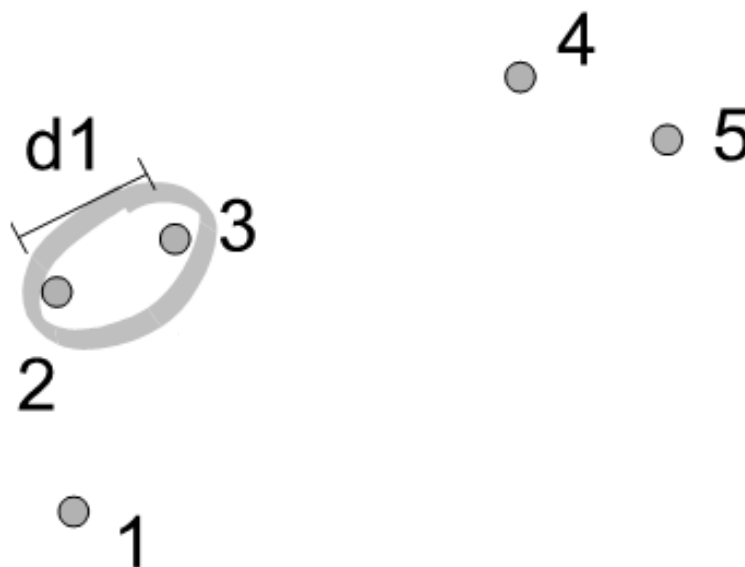
# Principe

Introduction à la statistique avec R > Classification hiérarchique



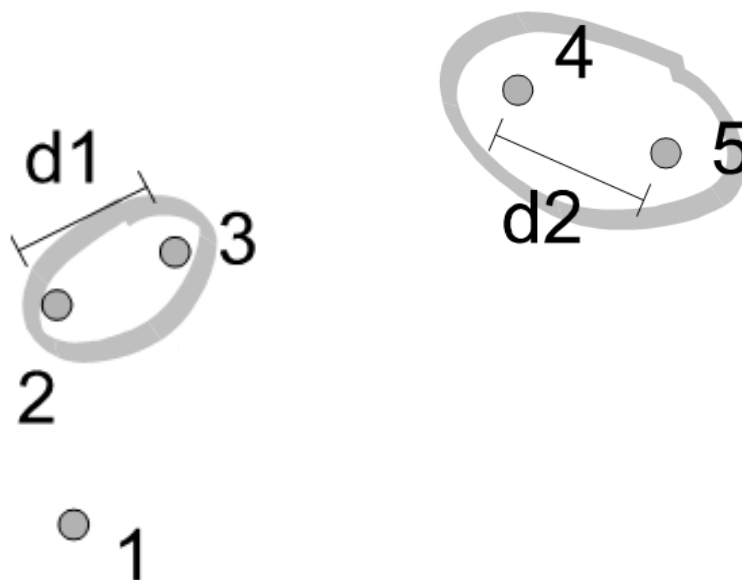
# Principe

Introduction à la statistique avec R > Classification hiérarchique



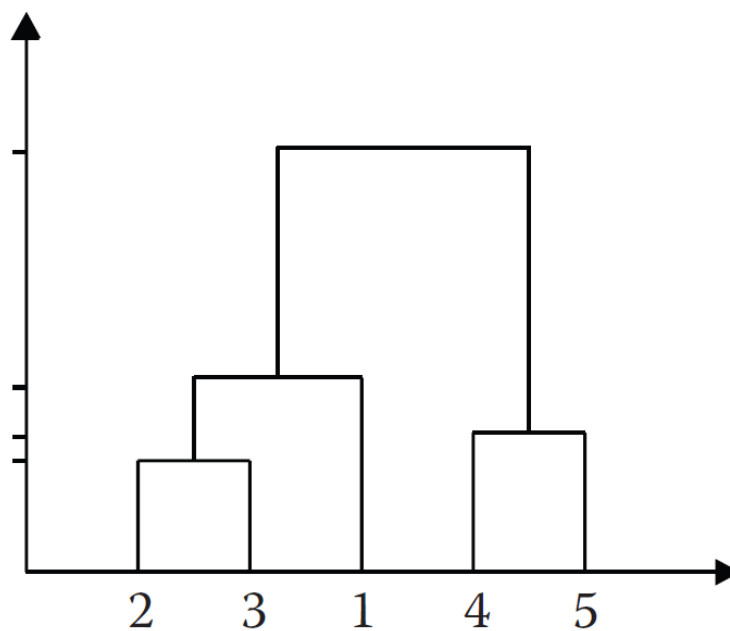
# Principe

Introduction à la statistique avec R > Classification hiérarchique



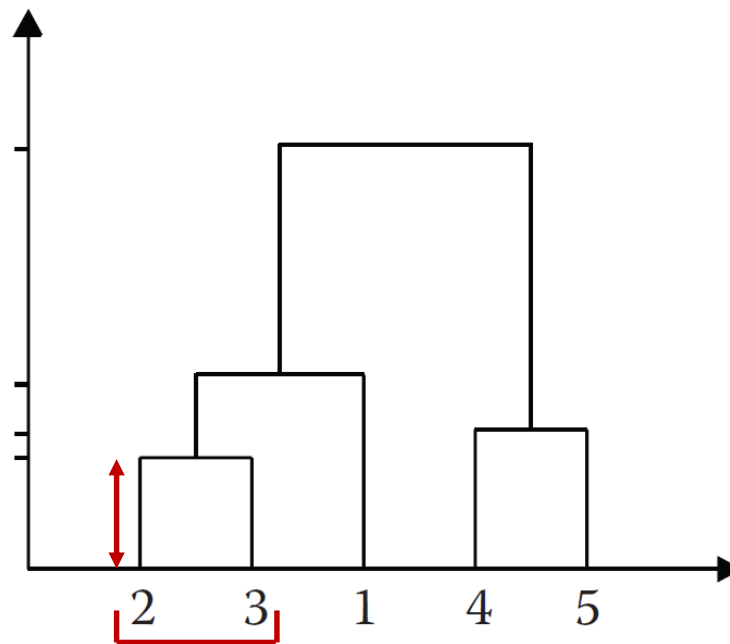
# Principe

Introduction à la statistique avec R > Classification hiérarchique



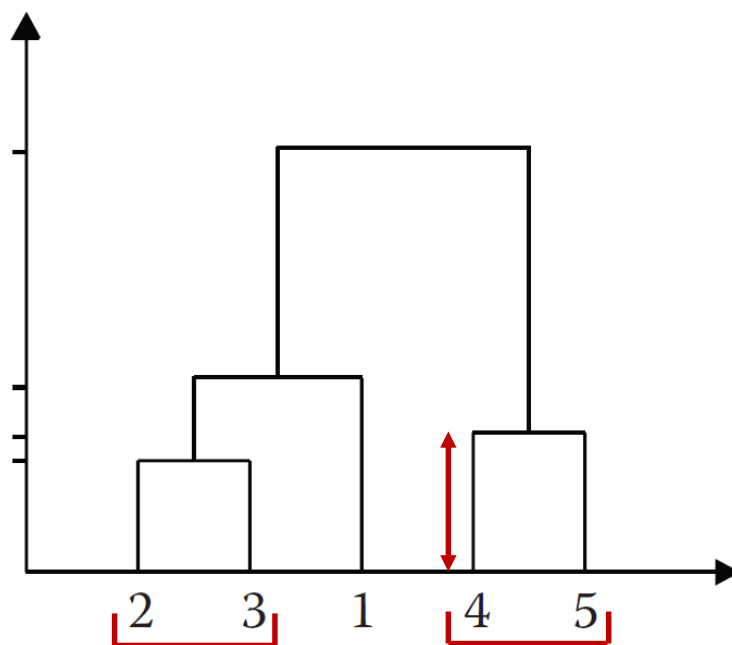
# Principe

Introduction à la statistique avec R > Classification hiérarchique



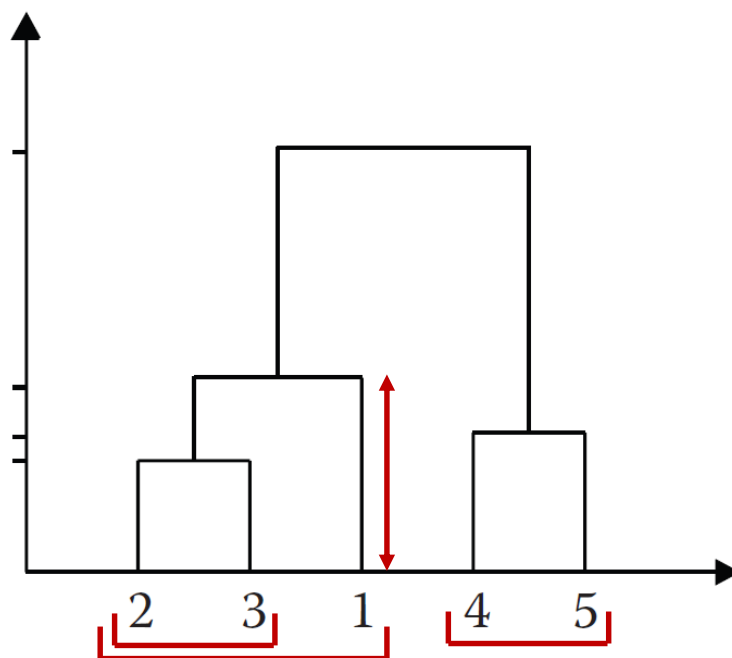
# Principe

Introduction à la statistique avec R > Classification hiérarchique



# Principe

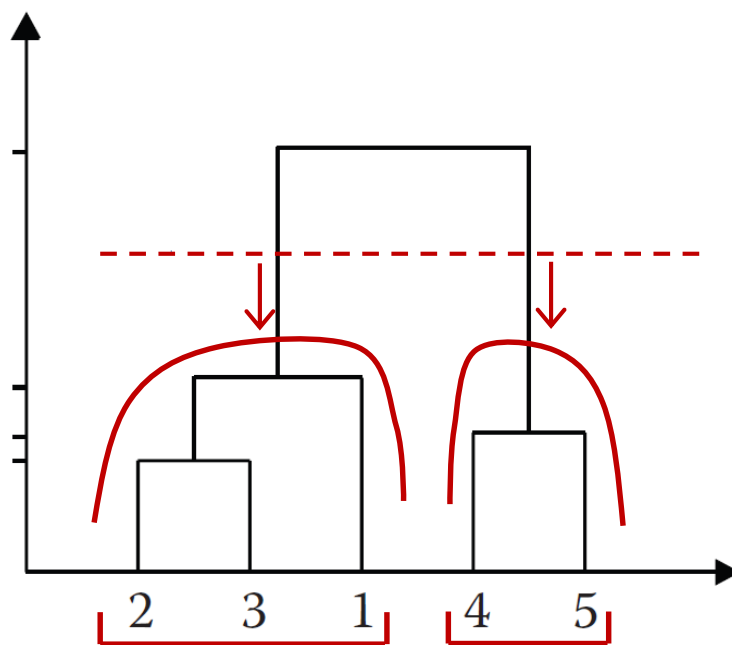
Introduction à la statistique avec R > Classification hiérarchique





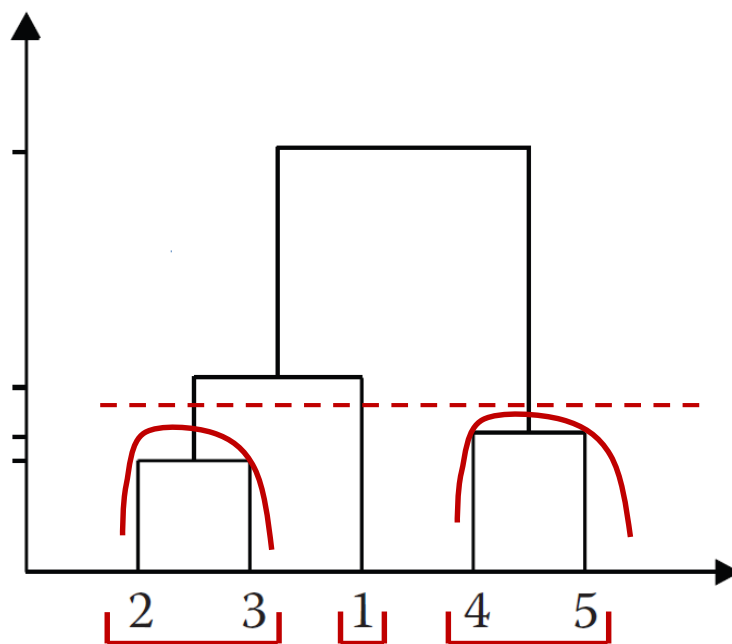
# Principe

Introduction à la statistique avec R > Classification hiérarchique



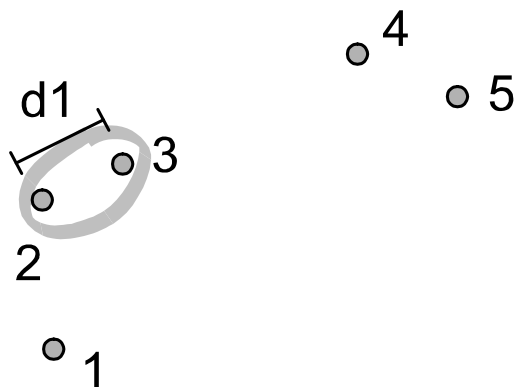
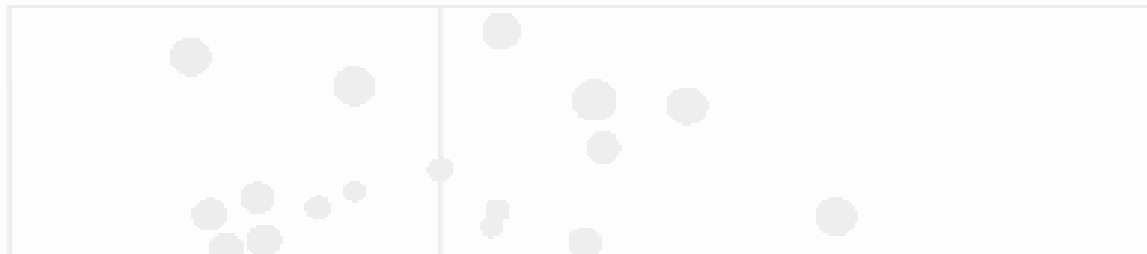
# Principe

Introduction à la statistique avec R > Classification hiérarchique



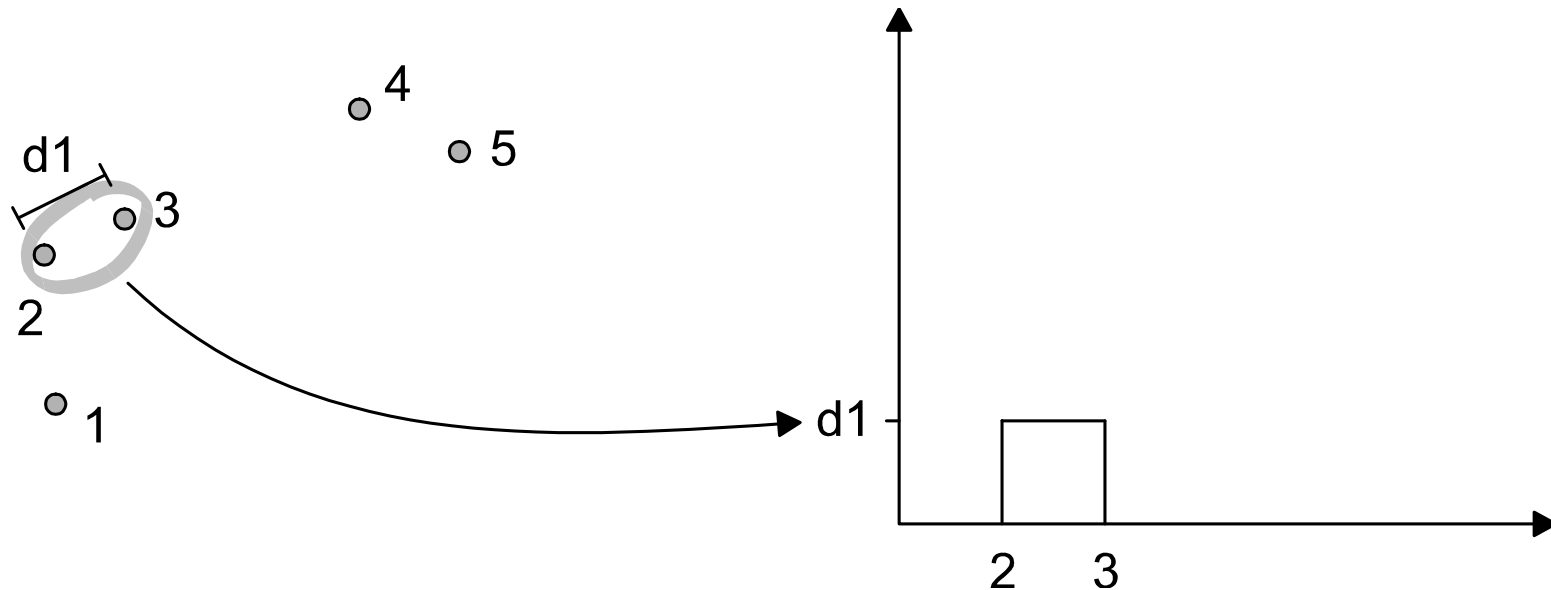
# Principe

Introduction à la statistique avec R > Classification hiérarchique



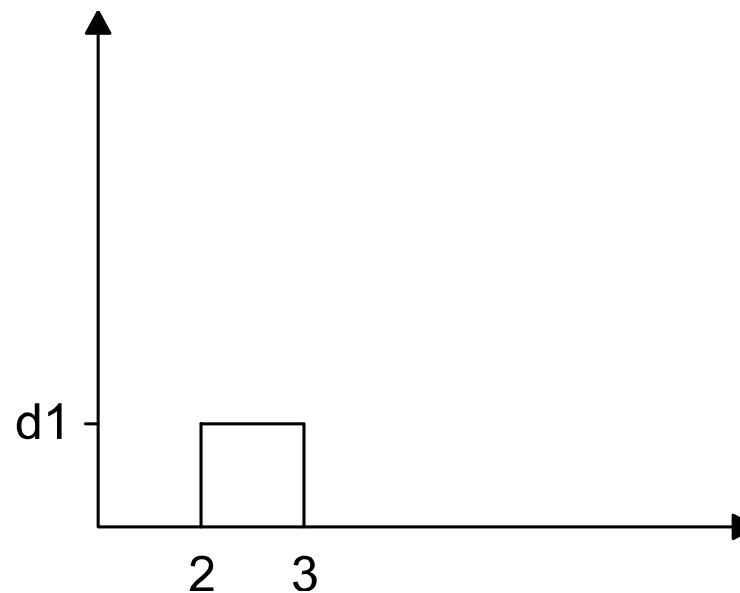
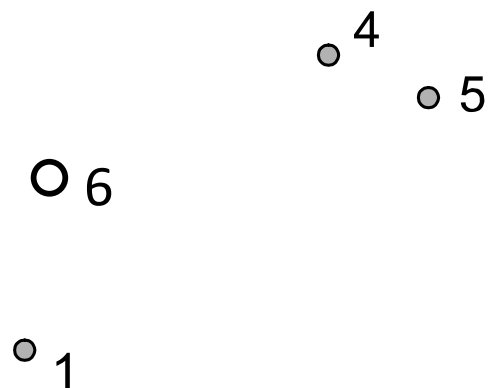
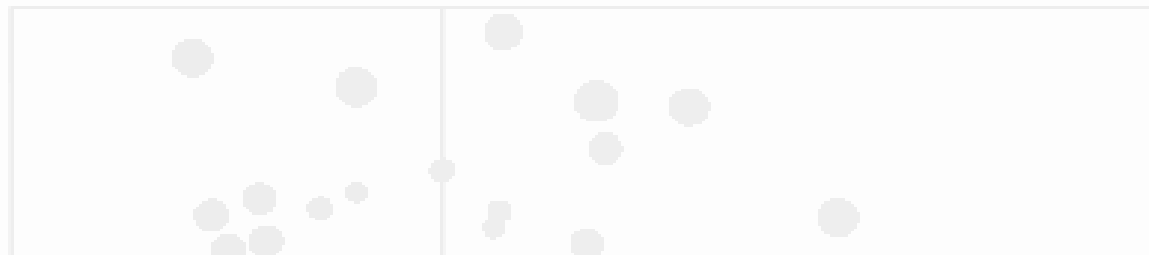
# Principe

Introduction à la statistique avec R > Classification hiérarchique



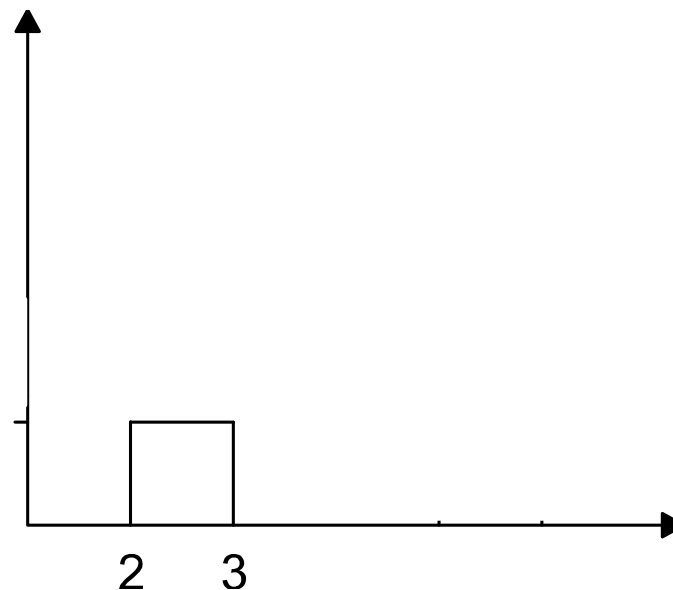
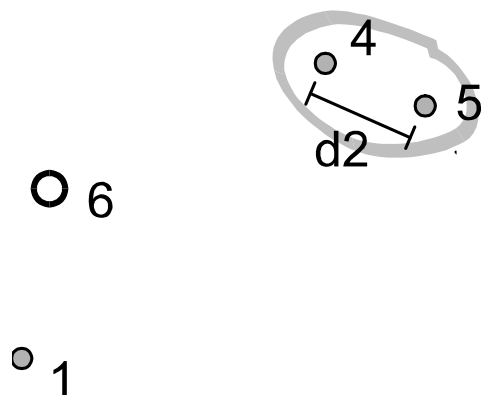
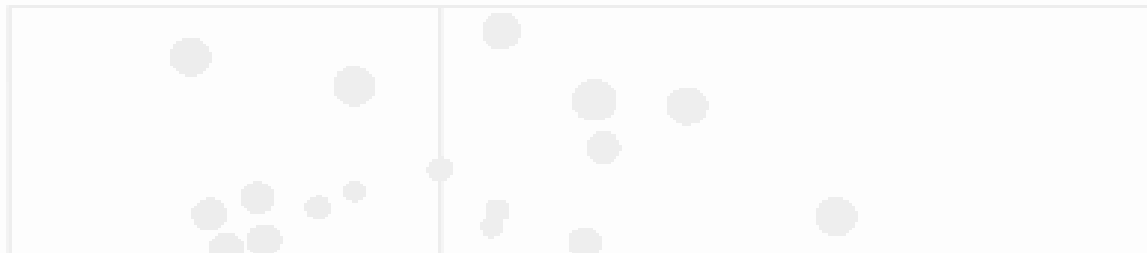
# Principe

Introduction à la statistique avec R > Classification hiérarchique



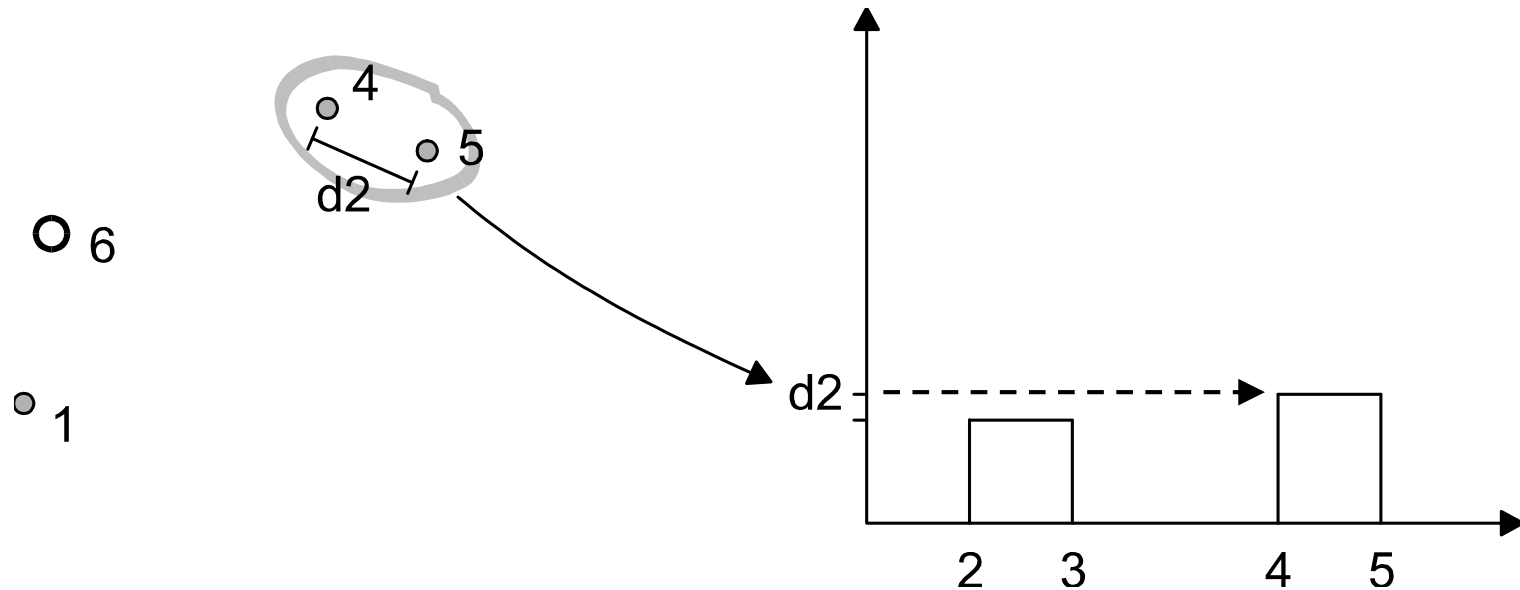
# Principe

Introduction à la statistique avec R > Classification hiérarchique



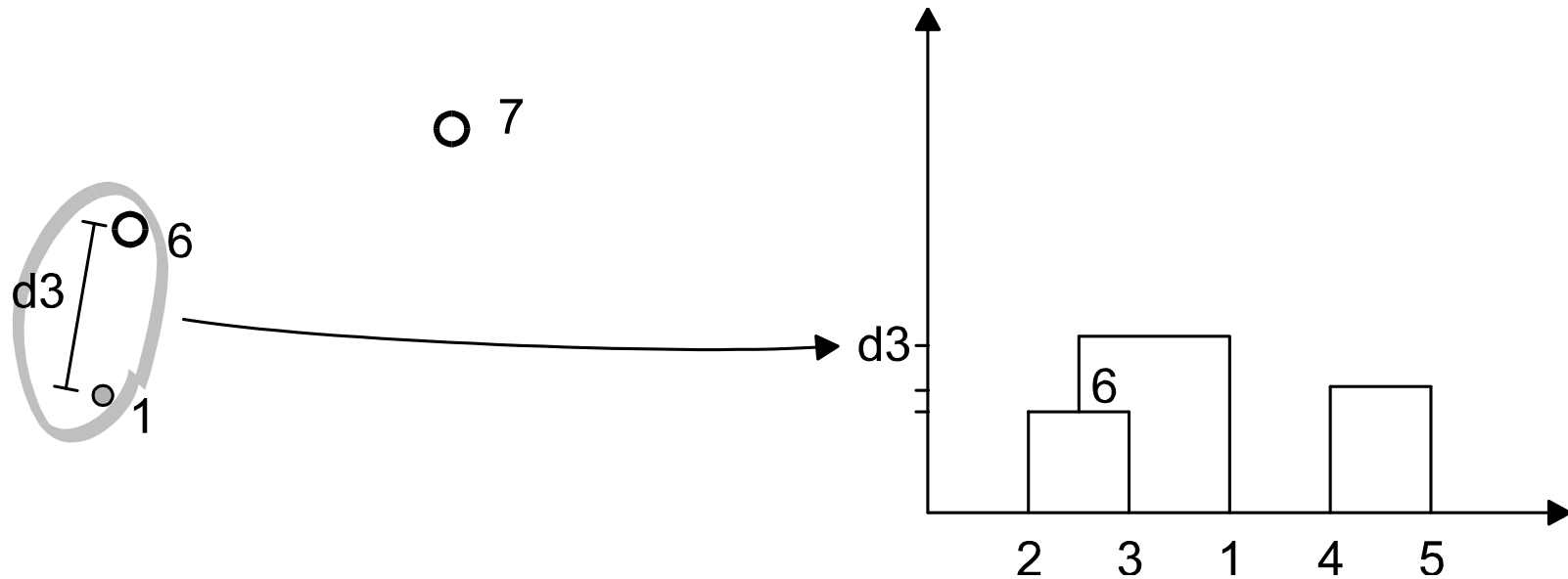
# Principe

Introduction à la statistique avec R > Classification hiérarchique



# Principe

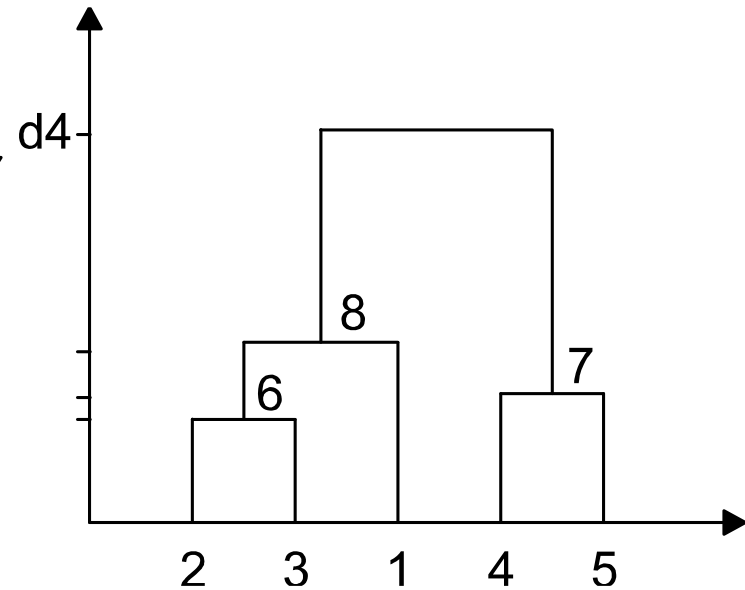
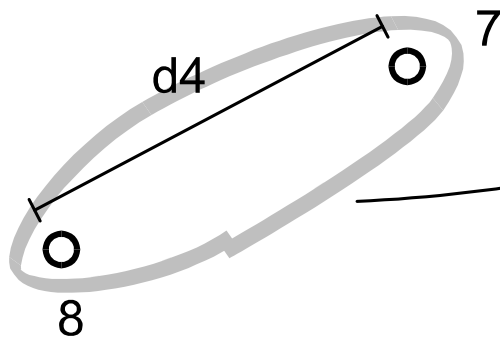
Introduction à la statistique avec R > Classification hiérarchique





# Principe

Introduction à la statistique avec R > Classification hiérarchique



	A	B	C	D	E
1		age	n.enfant	scz.cons	
2	id1	31	2	0	
3	id2	49	7	0	
4	id3	50	2	0	
5	id4	47	0	0	
6	id5	23	1	0	
7	id6	34	3	0	
8	id7	24	5	0	
9	id8	52	2	0	
10	...	...	...	...	
11	id100	28	3	0	
12					

	A	B	C	D	E
1		age	n.enfant	scz.cons	
2	id1	31	2	0	
3	id2	49	7	0	
4	id3	50	2	0	
5	id4	47	0	0	
6	id5	23	1	0	
7	id6	34	3	0	
8	id7	24	5	0	
9	id8	52	2	0	
10	...	...	...	...	
11	id100	28	3	0	
12					

	A	B	C	D	E
1		age	n.enfant	scz.cons	
2	id1	← 31	2	0	
3	id2	← 49	7	0	
4	id3	← 50	2	0	
5	id4	← 47	0	0	
6	id5	← 23	1	0	
7	id6	← 34	3	0	
8	id7	← 24	5	0	
9	id8	← 52	2	0	
10	...	...	...	...	
11	id100	← 28	3	0	
12					

	A	B	C	D	E
1		age	n.enfant	scz.cons	
2	id1	↑ 31	↑ 2	↑ 0	
3	id2	49	7	0	
4	id3	50	2	0	
5	id4	47	0	0	
6	id5	23	1	0	
7	id6	34	3	0	
8	id7	24	5	0	
9	id8	52	2	0	
10	...	...	...	...	
11	id100	28	3	0	
12					

```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```

```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```

```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```



```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[, var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```

```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```

```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```

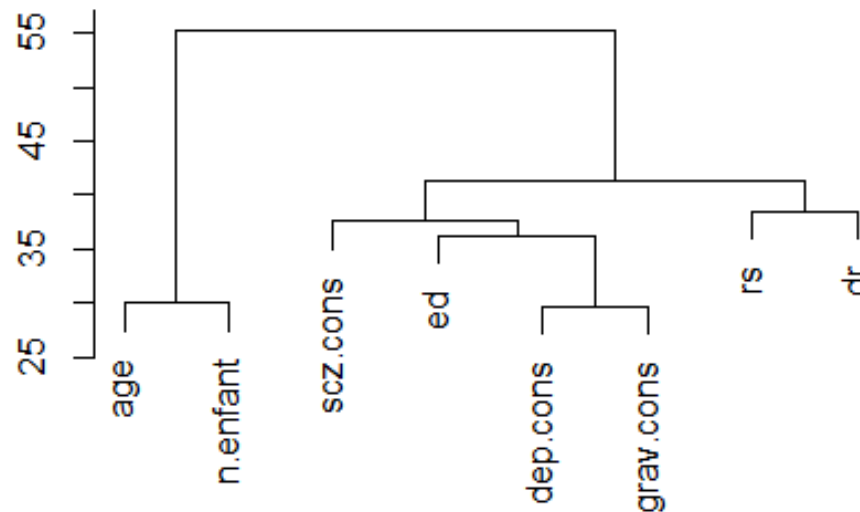
```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cah <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cah, xlab="", ylab="", main="Classification  
hiérarchique")
```

```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```

```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons",  
"grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))),  
method="ward")  
> plot(cha, xlab="", ylab="", main="Classification  
hiérarchique")
```

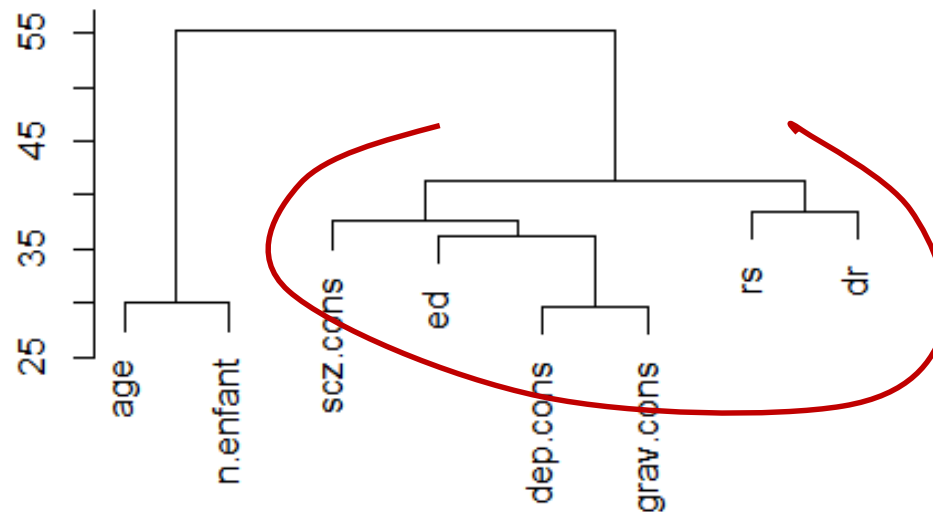
```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons", "grav.cons", "rs", "ed", "dr")  
> cah <- hclust(dist(t(scale(smp.l[,var]))), method="ward")  
> plot(cah, xlab="", ylab="", main="Classification hiérarchique")
```

### Classification hiérarchique



```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons", "grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))), method="ward")  
> plot(cha, xlab="", ylab="", main="Classification hiérarchique")
```

### Classification hiérarchique





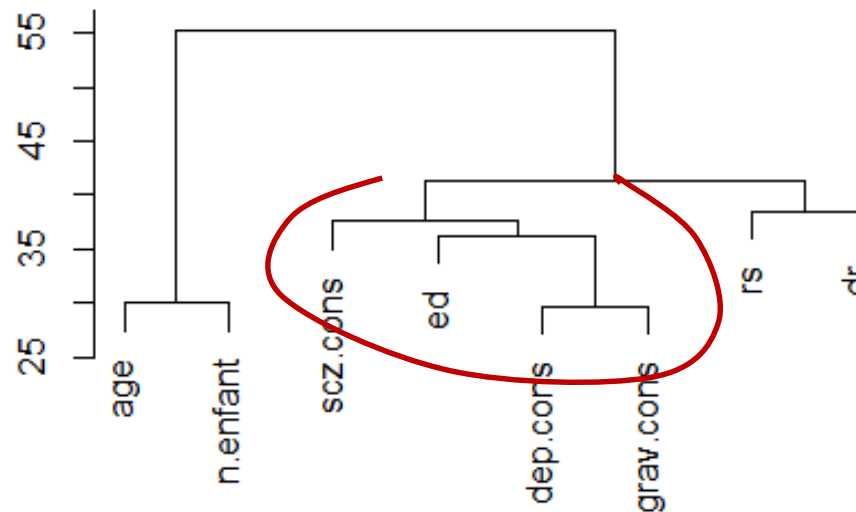
```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons", "grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))), method="ward")  
> plot(cha, xlab="", ylab="", main="Classification hiérarchique")
```

### Classification hiérarchique



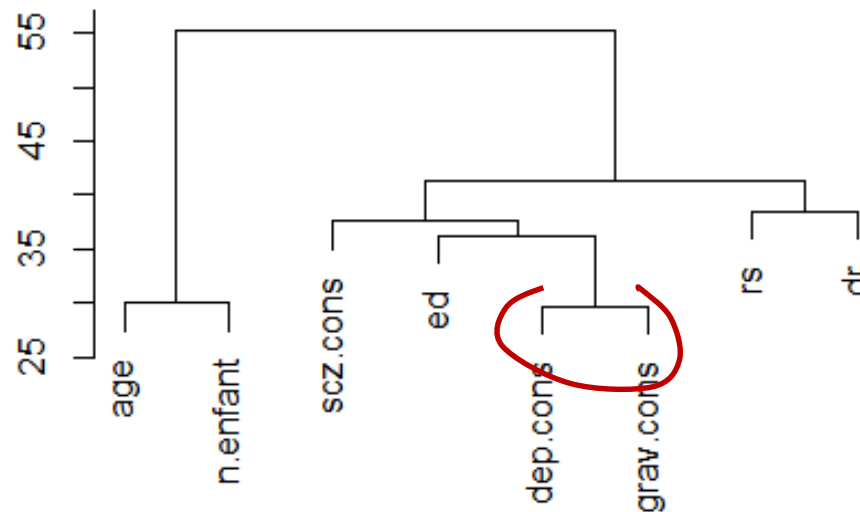
```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons", "grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))), method="ward")  
> plot(cha, xlab="", ylab="", main="Classification hiérarchique")
```

### Classification hiérarchique



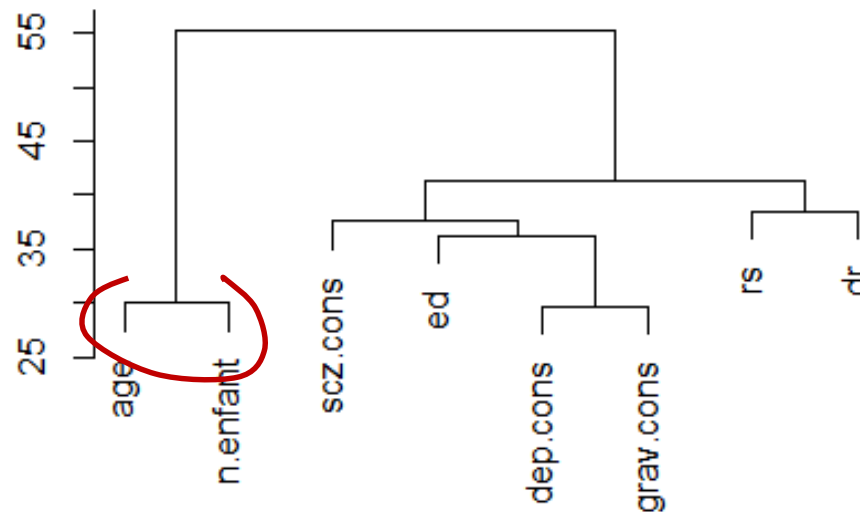
```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons", "grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))), method="ward")  
> plot(cha, xlab="", ylab="", main="Classification hiérarchique")
```

### Classification hiérarchique



```
> var <- c("age", "n.enfant", "scz.cons", "dep.cons", "grav.cons", "rs", "ed", "dr")  
> cha <- hclust(dist(t(scale(smp.l[,var]))), method="ward")  
> plot(cha, xlab="", ylab="", main="Classification hiérarchique")
```

### Classification hiérarchique

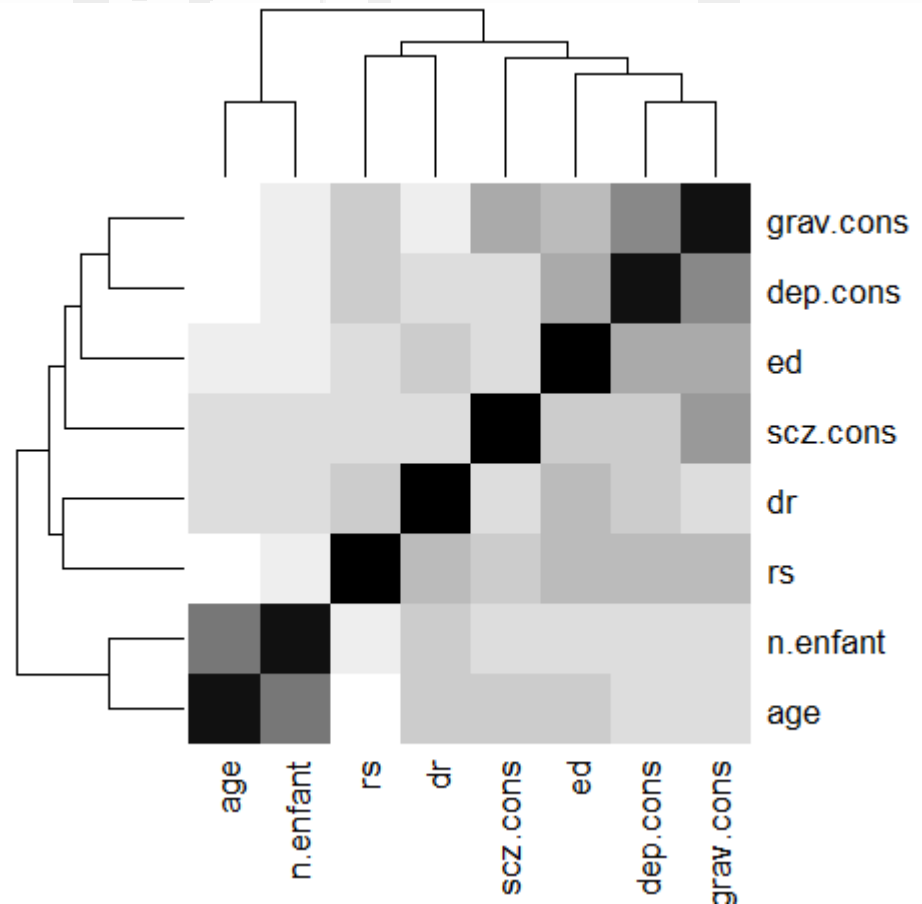


# Application

Introduction à la statistique avec R > Classification hiérarchique



```
> obj <- cor(smp.l[,var], use="pairwise.complete.obs")  
> heatmap(obj, col=gray(seq(1,0,length=16)))
```

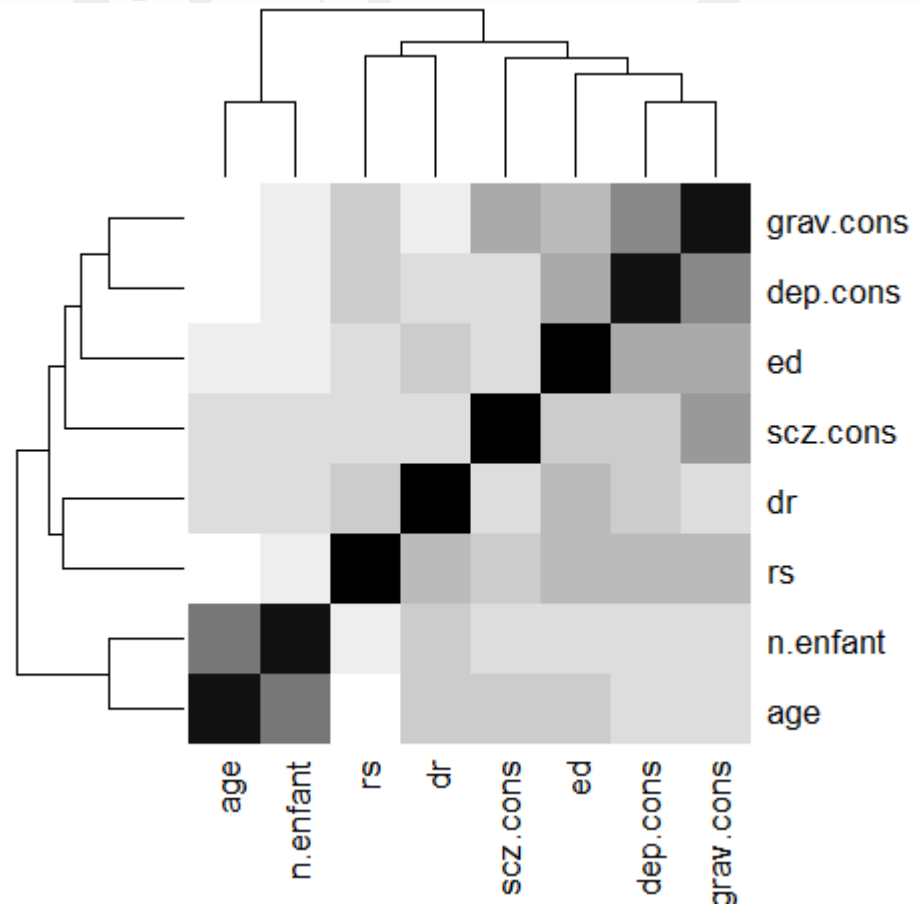


# Application

Introduction à la statistique avec R > Classification hiérarchique



```
> obj <- cor(smp.1[,var], use="pairwise.complete.obs")  
> heatmap(obj, col=gray(seq(1,0,length=16)))
```

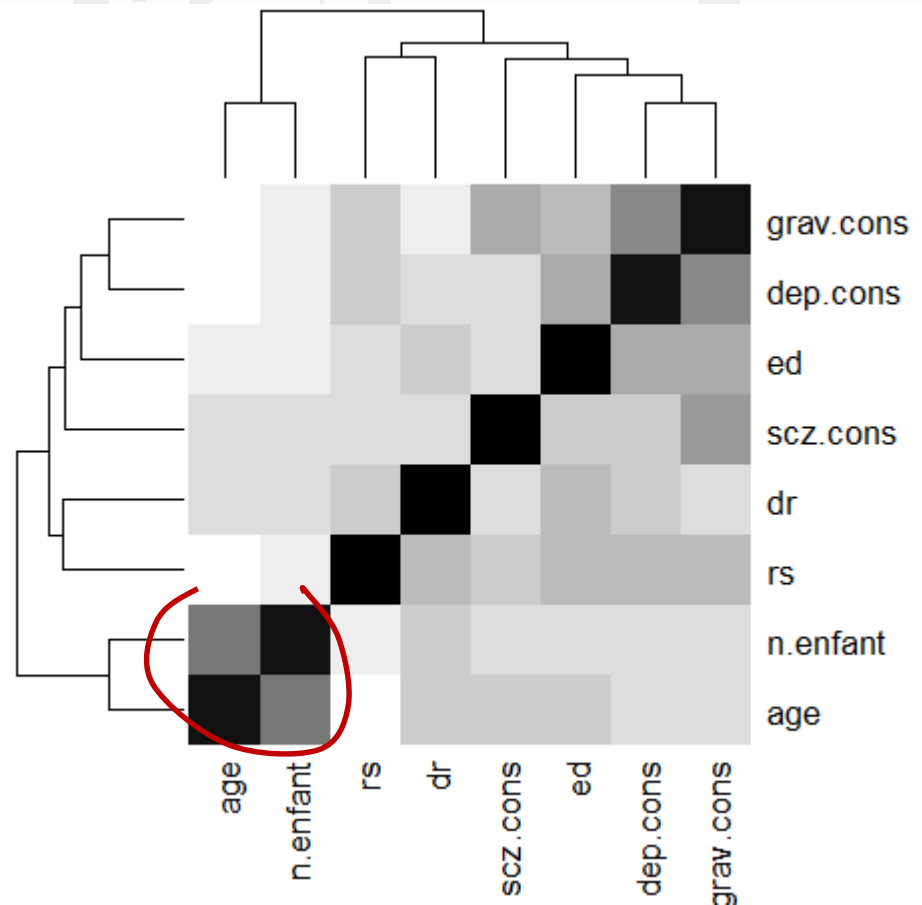


# Application

Introduction à la statistique avec R > Classification hiérarchique



```
> obj <- cor(smp.1[,var], use="pairwise.complete.obs")  
> heatmap(obj, col=gray(seq(1,0,length=16)))
```

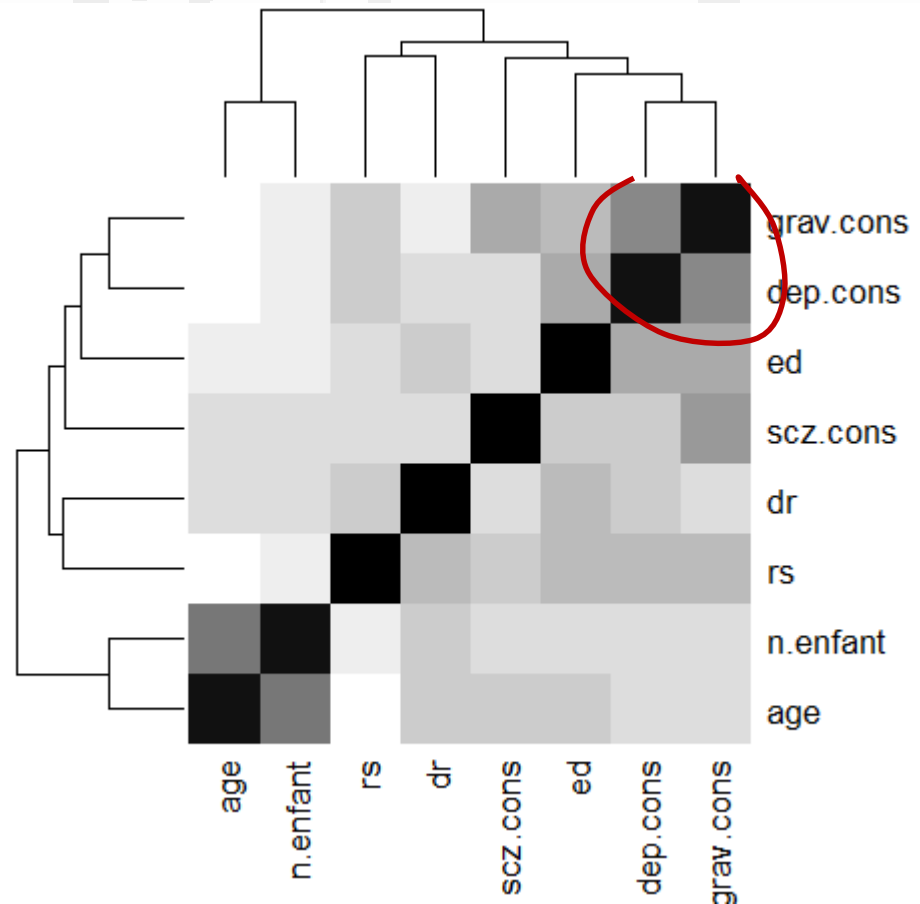


# Application

Introduction à la statistique avec R > Classification hiérarchique



```
> obj <- cor(smp.1[,var], use="pairwise.complete.obs")  
> heatmap(obj, col=gray(seq(1,0,length=16)))
```



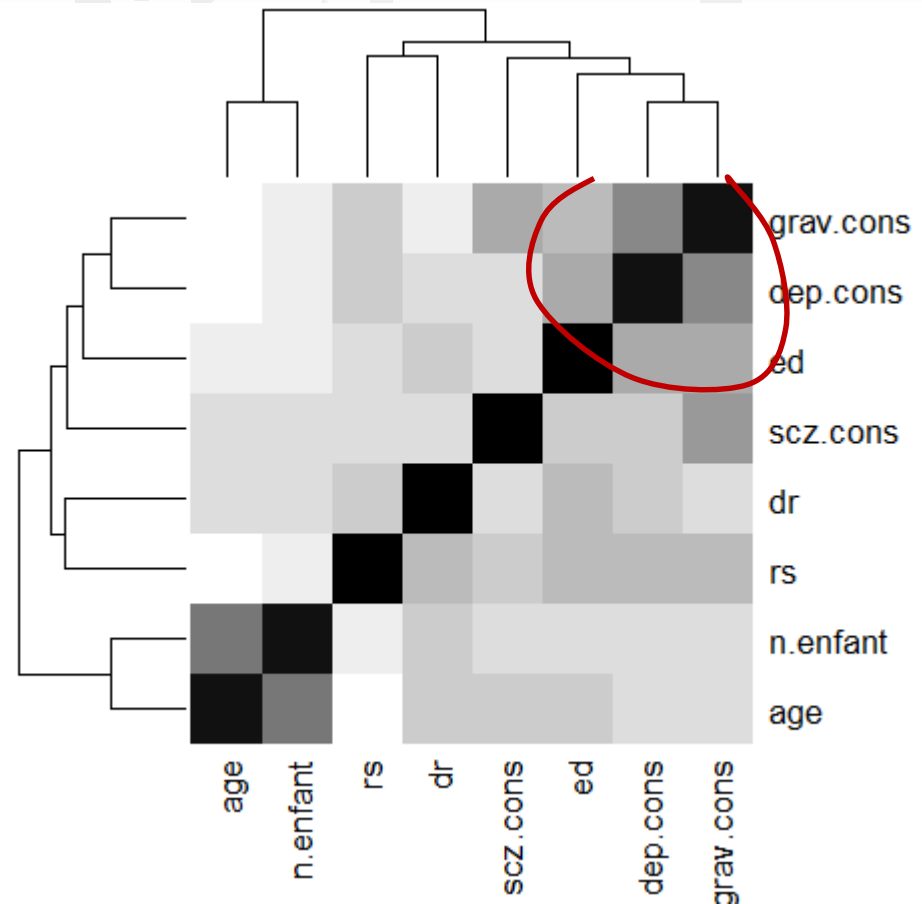


# Application

Introduction à la statistique avec R > Classification hiérarchique



```
> obj <- cor(smp.1[,var], use="pairwise.complete.obs")  
> heatmap(obj, col=gray(seq(1,0,length=16)))
```



# Conclusion

Introduction à la statistique avec R > Classification hiérarchique



```
var <- c("age", "n.enfant", "scz.cons", "dep.cons", "grav.cons",  
"rs", "ed", "dr")  
cah <- hclust(dist(t(scale(smp.l[,var]))), method="ward")  
plot(cah, xlab="", ylab="", main="Classification hiérarchique")  
obj <- cor(smp.l[,var], use="pairwise.complete.obs")  
heatmap(obj, col=gray(seq(1,0,length=16)))
```