

blabla

## Rappels sur le modèle linéaire

On considèrera le modèle suivant :

$$\mathbb{E}(y|x) = \beta_0 + \beta_1 x + \varepsilon.$$

```
> head(cars)
```

```
      speed dist
1         4    2
2         4   10
3         7    4
4         7   22
5         8   16
6         9   10
```

```
> summary(cars)
```

```
      speed      dist
Min.   : 4.0   Min.   : 2.00
1st Qu.:12.0   1st Qu.:26.00
Median :15.0   Median :36.00
Mean   :15.4   Mean    :42.98
3rd Qu.:19.0   3rd Qu.:56.00
Max.   :25.0   Max.    :120.00
```

```
> summary(lm(dist ~ speed, data = cars))
```

Call :

```
lm(formula = dist ~ speed, data = cars)
```

Residuals :

```
      Min       1Q   Median       3Q      Max
-29.069  -9.525  -2.272   9.215  43.201
```

Coefficients :

```
              Estimate Std. Error t value Pr(>|t|)
(Intercept) -17.5791     6.7584  -2.601   0.0123 *
speed         3.9324     0.4155   9.464 1.49e-12 ***
```

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Signif. codes : 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error : 15.38 on 48 degrees of freedom

Multiple R-squared : 0.6511, Adjusted R-squared : 0.6438

F-statistic : 89.57 on 1 and 48 DF, p-value : 1.49e-12