

Covarianza (statistica)

Varianza con dati multipli:

campionaria

$$\text{cov}(x, y) = \sum_{i=1}^n \frac{(x_i - \bar{x})(y_i - \bar{y})}{n - 1};$$

empirica

$$\text{cov}_e(x, y) = \sum_{i=1}^n \frac{(x_i - \bar{x})(y_i - \bar{y})}{n};$$

Da

$$\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y}) = \sum_{i=1}^n x_i y_i - n \bar{x} \bar{y}$$

si ricava:

$$\text{cov}_e(x, y) = \sum_{i=1}^n \frac{x_i y_i}{n} - \bar{x} \bar{y}.$$