



## Why

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### Definition

The *correlation* between two integrable real-valued random variables with non-zero variance is the quotient of their covariance with the product of their standard deviations.

Two integrable real-valued random variables are *uncorrelated* if their covariance is zero. We can speak of uncorrelated random variables who have zero variance, although in this case their correlation is undefined.

### Notation

Let  $f$  and  $g$  be two integrable real-valued random variables with  $fg$  integrable. Denote the correlation of  $f$  with  $g$  by  $\text{cor}(f, g)$ . We defined it:

$$\text{cor}(f, g) = \frac{\text{cov}(f, g)}{\text{std } f \text{ std } g}.$$

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<sup>1</sup>Future editions will include this.



