

[Bivariate] [Pearson] Correlation

[Pearson's] r = [Linear] Correlation Coefficient

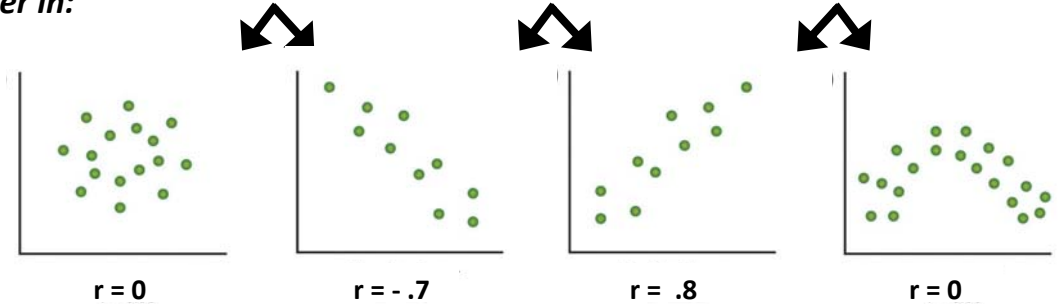
Relationships between two variables differ in:

Strength

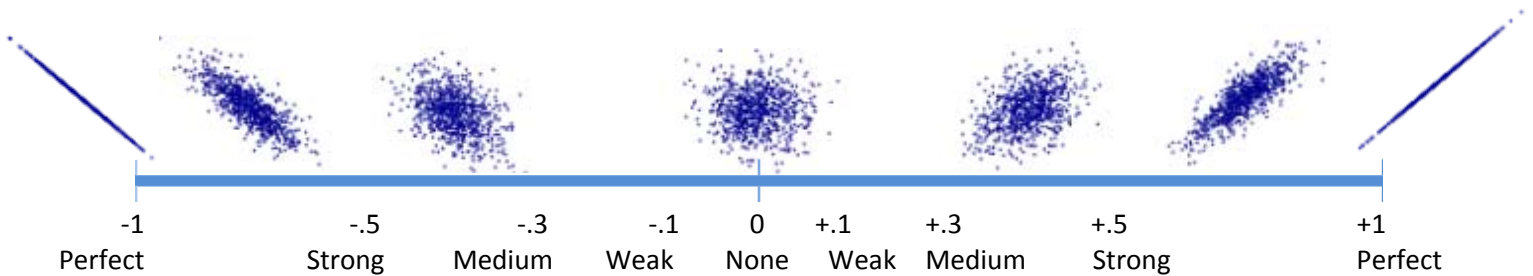
Direction

Pattern

Pearson's r describes the strength and direction of a linear relationship.



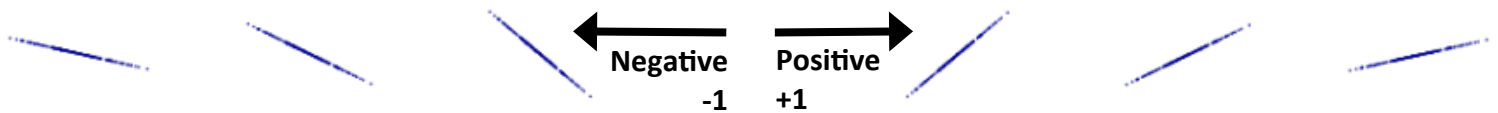
Strength



The exact values at which the relationship is considered weak, medium or strong depends on your field and the topic.

Direction

The data on the left show negative correlations ($r = -1$) because as one variable increases the other decreases. The data on the right show positive correlations ($r = +1$) because as one variable increases the other does, too.



Pattern

The data below have the **same** correlation coefficient and regression line, but very different patterns. Anscombe created this quartet to show researchers why it is important for to graph your data.

