error

The difference between an *estimate* and a corresponding *observation*. In most practical cases, there is no known perfect *model* for describing a series of observations, which is why there is some inherent "noise" in each *sample*, which is called the "irreducible error". No matter how well a model fits the given data, there will always be some variance due to the irreducible error. The "reducible error" is the difference between the total error and the irreducible error. The process of statistical modeling attempts to minimize the reducible error.

Methods for measuring the error of an estimate include, among others, the *standard error of the estimate*, the *mean squared error* (MSE), and the *residual sum of squares* (RSS). See *model* for a visualization. See *type I error* and *type II error* for other uses.