



Why

We have studied guessing random variables (see **Estimates**). What if we can use another random variable in making our estimate?

Definition

Let $(\Omega, \mathcal{A}, \mathbf{P})$ be a probability space. Let U, V be sets. Let $x : \Omega \rightarrow V$ and let $y : \Omega \rightarrow U$. An *estimator* or *predictor* for x given y is a function from U to V . We use these words in contrast with the word estimate (see **Estimates**). Notice, however, that we may consider a constant estimator. Some authors call the selection of an estimator *estimation* or an *estimation problem*.

Error function

An error function is a function $e : U \times V \rightarrow \mathbf{R}$ which quantifies the cost of an error.

