Expectation

1 Why

TODO

2 Definition

The **expectation** of a random variable is the integral of that random variable with respect to the probability measure.

2.1 Notation

Let $(X, \mathcal{A}, \mu)$ be a probability space and f be a random variable. We denote the expectation of f by $\mathbf{E}\, f$. We defined it by

$$\mathbf{E}\, f = \int f d\mu$$