



Real Probability Densities

1 Why

We want to talk about probability on the set of outcomes which is the real numbers.

2 Definition

A *probability density* or *probability density function* is a real-valued function on the reals which is nonnegative and normalized. A real-valued function on the reals is *normalized* if it integrates to 1.

3 Notation

Let $f : \mathbf{R} \rightarrow \mathbf{R}$ with $f \geq 0$ and $\int f = 1$. Then f is a probability density.