



## Why

We want a notion of “uncertainty” for a real-valued (continuous) random variable.

## Definition

The *relative entropy* of a probability density function is the integral of the density against the negative log of the density.

## Notation

Let  $f : \mathbf{R}^n \rightarrow \mathbf{R}$  be a probability density function. The differential entropy of  $f$  is

$$- \int f \log f$$

We denote the differential entropy of  $f$  by  $h(f)$ .



