Differential Entropy

1 Why

We want a notion of entropy for continuous random variables.

2 Definition

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

2.1 Notation

Let R denote the set of real numbers. Let $f : R^n \to R$ be a probability density function. The differential entropy of f is

$$-\int f \log f$$

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