



## Why

We provide a principle for density selection based on maximizing the probability of the dataset.

## Definition

Let  $(x^1, \dots, x^n)$  be a dataset in  $\mathbf{R}^d$ . The *density likelihood* for this dataset is

$$\prod_{k=1}^n f(x^k).$$

A *maximum likelihood density* is a density which maximizes the density likelihood among all densities. A *maximum likelihood density selector* is a density selector that associates a dataset with a maximum likelihood density.



