



## Marginal Densities

### 1 Why

TODO

### 2 Definition

The *i*th marginal density of a multivariate density is the density obtained by integrating over every component with a particular component fixed.

Similalry the *i, j*th marginal density of a multivariate density is the density obtained by integrated over every component with the *i* and *j*th components fixed.

### 3 Notation

Let  $f : \mathbf{R}^d \rightarrow \mathbf{R}$  be a density. For  $i = 1, \dots, d$ , let  $f_i : \mathbf{R} \rightarrow \mathbf{R}$  be defined by

$$f(\xi) = \int_{\{x \in \mathbf{R}^d \mid x_i = \xi\}} f$$

