



# Marginal Distributions

## 1 Why

## 2 Definition

The marginal distribution is

### 2.1 Notation

Let  $R$  denote the set of real numbers. Let  $A_1, \dots, A_n$  be a sequence of non-empty finite sets. Let  $A = \prod_{i=1}^n A_i$ . Let  $p : A \rightarrow R$  be a distribution on  $A$ . We denote the  $i$ th marginal distribution of  $p$  by  $p_i : A_i \rightarrow R$ . For  $i = 1, \dots, n$ ,  $p_i$  satisfies

$$p_i(b) = \sum_{a_i=b} p(a)$$

for each  $b \in A_i$ .