Conditional Distributions

1 Why

2 Definition

2.1 Notation

Let R denote the set of real numbers. Let $A_1, \ldots, A_n$ be a sequence of non-empty finite sets. Let $A = \prod_{i=1}^{n} A_i$ Let $p : A \to R$ be a distribution on A. We denote the conditional distribution of i on j of p by $p_{i|j} : A_i \times A_j \to R$ For $i, j = 1, \ldots, n$ and $i \neq j$ p_i satisifes

$$p_{i|j}(b, c)p_j(c) = p_{ij}(b, c)$$

for every $b \in A_i$ and $c \in A_j$.