Why

We want to speak of the pairwise conditional distributions of a particular joint distribution.[1]

Definition

Let $p : \prod_{i=1}^{n} A_i \to \mathbf{R}$ be a distribution on A.

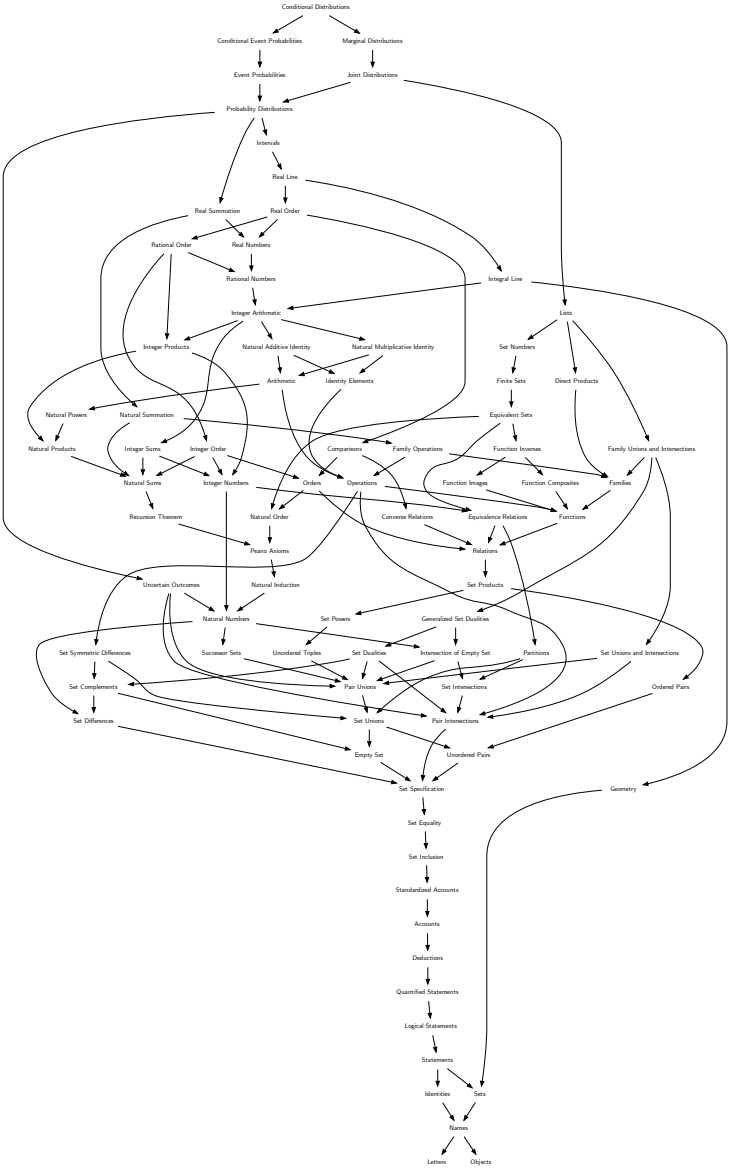
For $i \neq j \in \{1, \ldots, n\}$, the *conditional distribution* of i on j is the function $p_{i|j} : A_i \times A_j \to \mathbf{R}$ defined so that that $p_{i|j}(\cdot, b)$ is the conditional distribution induced by conditioning on $\{a \in \prod_{i=1}^{n} A_i \mid a_j = b\}$.

For $i, j = 1, \ldots, n$ and $i \neq j$, p_i and $p_{i,j}$ satisify

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

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

[1] Future editions will rework this sheet.


Conditional Distributions
Conditional Event Probabilities
Marginal Distributions
Event Probabilities
Joint Distributions
Probability Distributions
Intervals
Real Line
Real Summation
Real Order
Rational Order
Real Numbers
Rational Numbers
Integral Line
Integer Arithmetic
Lists
Integer Products
Natural Additive Identity
Natural Multiplicative Identity
Set Numbers
Arithmetic
Identity Elements
Finite Sets
Direct Products
Natural Powers
Natural Summation
Equivalent Sets
Natural Products
Integer Sums
Integer Order
Comparisons
Family Operations
Function Inverses
Family Unions and Intersections
Natural Sums
Integer Numbers
Orders
Operations
Function Images
Function Composites
Families
Recursion Theorem
Natural Order
Converse Relations
Equivalence Relations
Functions
Peano Axioms
Relations
Uncertain Outcomes
Natural Induction
Set Products
Natural Numbers
Set Powers
Generalized Set Dualities
Set Symmetric Differences
Successor Sets
Unordered Triples
Set Dualities
Intersection of Empty Set
Partitions
Set Unions and Intersections
Set Complements
Pair Unions
Set Intersections
Ordered Pairs
Set Differences
Set Unions
Pair Intersections
Empty Set
Unordered Pairs
Set Specification
Geometry
Set Equality
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects