### Why

TODO

### Definition

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

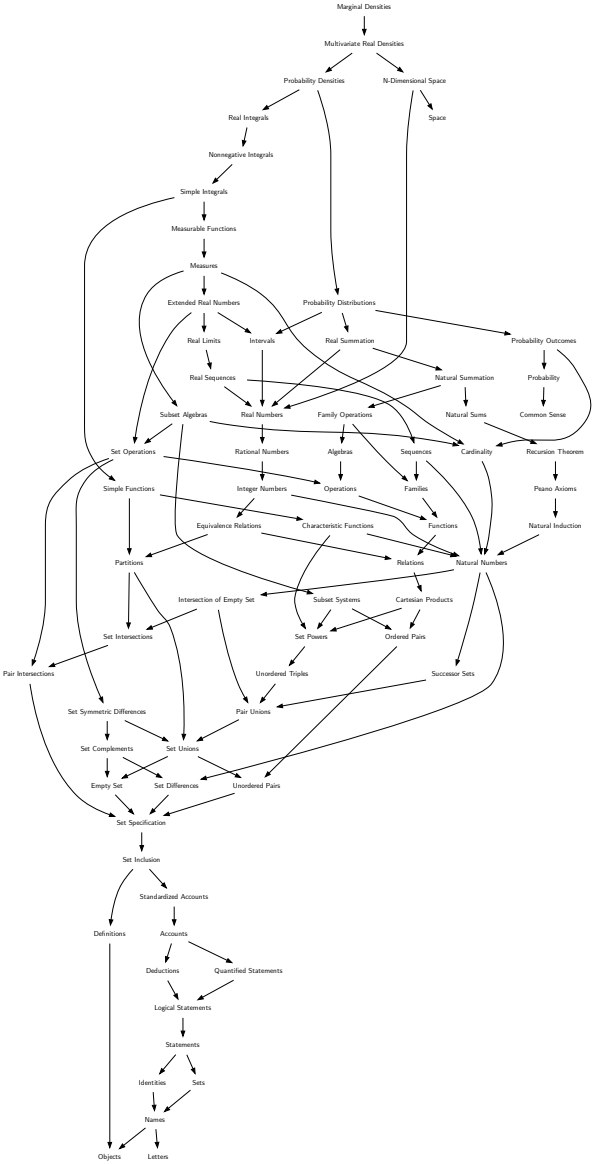
Similalry the $i, jth$ *marginal density* of a multivariate density is the density obtained by integrated over every component with the $i$ and $j$th components fixed.

### Notation

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

$$f(\xi) = \int_{\left\{x \in \mathbf{R}^d \middle| x_i = \xi\right\}} f$$

for each $\xi \in \mathbf{R}$, Then $f_i$ is the $i$th marginal density of $f$.


Marginal Densities
Multivariate Real Densities
Probability Densities
N-Dimensional Space
Real Integrals
Space
Nonnegative Integrals
Simple Integrals
Measurable Functions
Measures
Extended Real Numbers
Probability Distributions
Real Limits
Intervals
Real Summation
Probability Outcomes
Real Sequences
Natural Summation
Probability
Subset Algebras
Real Numbers
Family Operations
Natural Sums
Common Sense
Set Operations
Rational Numbers
Algebras
Sequences
Cardinality
Recursion Theorem
Simple Functions
Integer Numbers
Operations
Families
Peano Axioms
Equivalence Relations
Characteristic Functions
Functions
Natural Induction
Partitions
Relations
Natural Numbers
Intersection of Empty Set
Subset Systems
Cartesian Products
Set Intersections
Set Powers
Ordered Pairs
Pair Intersections
Unordered Triples
Successor Sets
Set Symmetric Differences
Pair Unions
Set Complements
Set Unions
Empty Set
Set Differences
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Definitions
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Objects
Letters