Why

We want a norm on the space of measures.

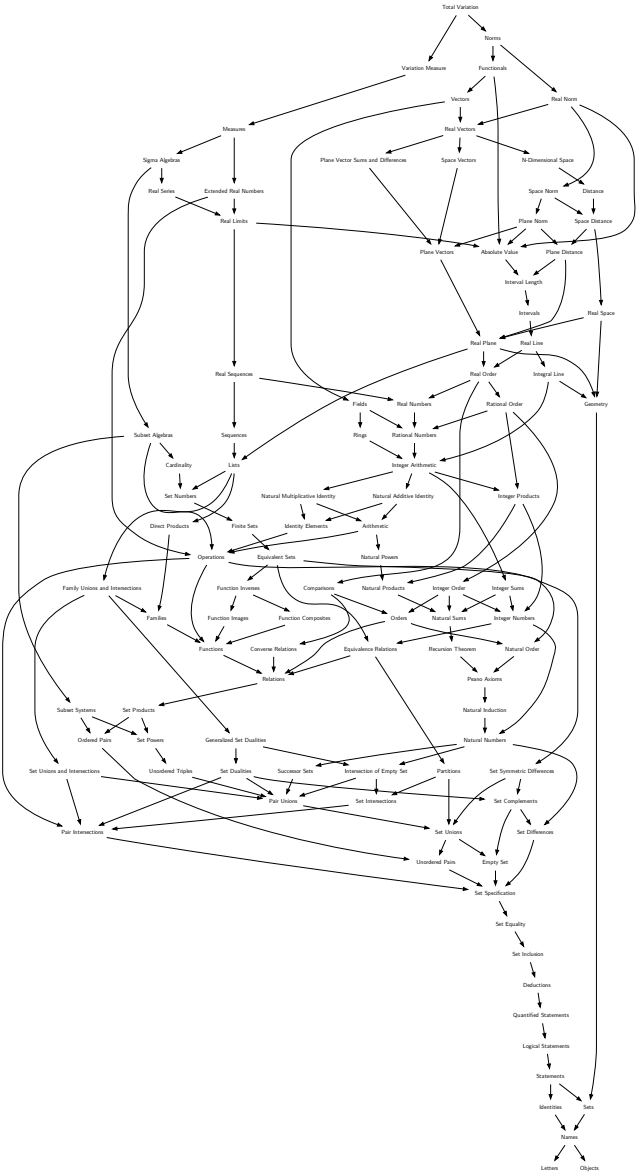
Definition

The *total variation* of finite measure is the variation measure of the base set. We show below that the total variation is a norm on the vector space of finite measures.

Notation

Let $(X, \mathcal{A})$ be a measurable space and $\mu : X \to \mathbf{R}$ be a finite signed measure. We denote the total variation by $\|\mu\|$.

Let $|\mu|$ be the variation of μ. Then, $\|\mu\| = |\mu|(X)$.


Total Variation
Norms
Variation Measure
Functionals
Vectors
Real Norm
Measures
Real Vectors
Sigma Algebras
Plane Vector Sums and Differences
Space Vectors
N-Dimensional Space
Real Series
Extended Real Numbers
Space Norm
Distance
Real Limits
Plane Norm
Space Distance
Plane Vectors
Absolute Value
Plane Distance
Interval Length
Intervals
Real Space
Real Plane
Real Line
Real Sequences
Real Order
Integral Line
Fields
Real Numbers
Rational Order
Geometry
Subset Algebras
Sequences
Rings
Rational Numbers
Cardinality
Lists
Integer Arithmetic
Set Numbers
Natural Multiplicative Identity
Natural Additive Identity
Integer Products
Direct Products
Finite Sets
Identity Elements
Arithmetic
Operations
Equivalent Sets
Natural Powers
Family Unions and Intersections
Function Inverses
Comparisons
Natural Products
Integer Order
Integer Sums
Families
Function Images
Function Composites
Orders
Natural Sums
Integer Numbers
Functions
Converse Relations
Equivalence Relations
Recursion Theorem
Natural Order
Relations
Peano Axioms
Subset Systems
Set Products
Natural Induction
Ordered Pairs
Set Powers
Generalized Set Dualities
Natural Numbers
Set Unions and Intersections
Unordered Triples
Set Dualities
Successor Sets
Intersection of Empty Set
Partitions
Set Symmetric Differences
Pair Unions
Set Intersections
Set Complements
Pair Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects