Why

Let us consider examples of signed measures. TODO

Examples

Consider an integrable function defined on some measurable space. The extended-real-valued funciton which assigns to each distinguished set the value of the integrating the function over that set is a signed measure. See Example 1.

Consider

Example 1. *Let $(X, \mathcal{A}, \mu)$ a measure space. Let R denote the set of real numbers. Let $f : X \to R$ an integrable function. Define $\nu : \mathcal{A} \to R$ by*

$$\nu(A) = \int_A f d\mu.$$

Then ν is a signed measure.

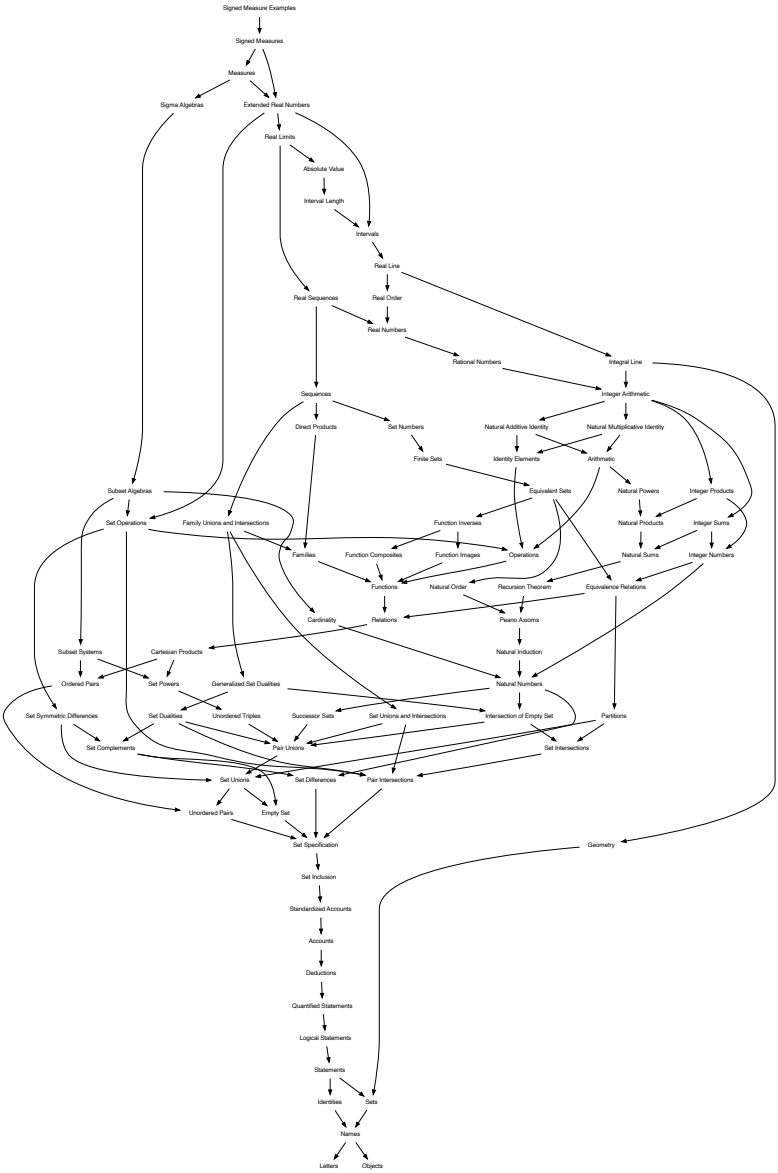
Proof. First,

$$\nu(\varnothing) = \int f\chi_{\varnothing} d\mu = \int 0 d\mu = 0.$$

Next, let $(A_n)_n$ disjoint. Notice that,

$$\chi_{\cup_{i=1}^{n} A_k} = \sum_{i=k}^{n} \chi_{A_k}$$

so for all n, □


Signed Measure Examples
Signed Measures
Measures
Sigma Algebras
Extended Real Numbers
Real Limits
Absolute Value
Interval Length
Intervals
Real Line
Real Sequences
Real Order
Real Numbers
Rational Numbers
Integral Line
Sequences
Integer Arithmetic
Direct Products
Set Numbers
Natural Additive Identity
Natural Multiplicative Identity
Finite Sets
Identity Elements
Arithmetic
Subset Algebras
Equivalent Sets
Natural Powers
Integer Products
Set Operations
Family Unions and Intersections
Function Inverses
Natural Products
Integer Sums
Families
Function Composites
Function Images
Operations
Natural Sums
Integer Numbers
Functions
Natural Order
Recursion Theorem
Equivalence Relations
Cardinality
Relations
Peano Axioms
Subset Systems
Cartesian Products
Natural Induction
Ordered Pairs
Set Powers
Generalized Set Dualities
Natural Numbers
Set Symmetric Differences
Set Dualities
Unordered Triples
Successor Sets
Set Unions and Intersections
Intersection of Empty Set
Partitions
Set Complements
Pair Unions
Set Intersections
Set Unions
Set Differences
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Geometry
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects