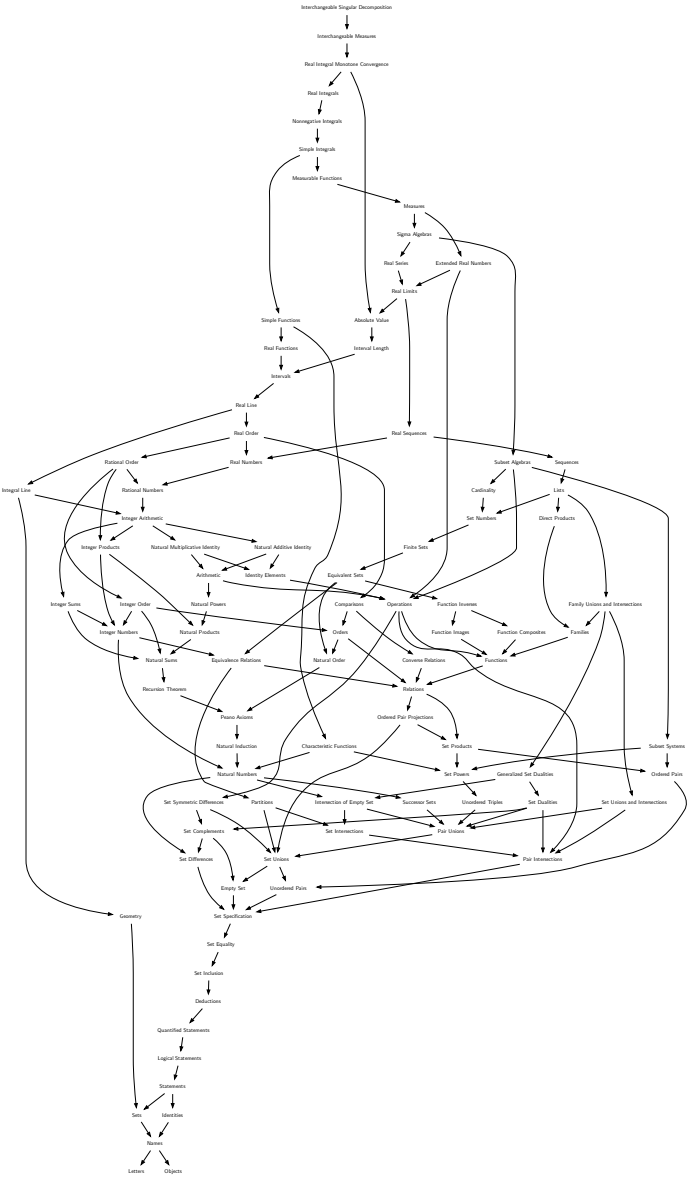
Why

Suppose a measure is not interchangeable with another. Then what. We can separate out the troublesome piece; perhaps it can be handled separately.

Result

Proposition 1. *Let $(X, \mathcal{A})$ be a measurable space. Let μ be a measure on $(X, \mathcal{A})$. Let ν be a finite signed measure or complex measure or σ-finite measure on $(X, \mathcal{A})$. There there is a unique decomposition $\nu = \nu_a + \nu_s$ where $\nu_a \ll \mu$ and $\nu_s \perp \mu$.*

The above is also called *Lebesgue's Decomposition Theorem*


Interchangeable Singular Decomposition
Interchangeable Measures
Real Integral Monotone Convergence
Real Integrals
Nonnegative Integrals
Simple Integrals
Measurable Functions
Measures
Sigma Algebras
Real Series
Extended Real Numbers
Real Limits
Simple Functions
Absolute Value
Real Functions
Interval Length
Intervals
Real Line
Real Order
Real Sequences
Subset Algebras
Sequences
Rational Order
Real Numbers
Integral Line
Rational Numbers
Cardinality
Lists
Integer Arithmetic
Set Numbers
Direct Products
Integer Products
Natural Multiplicative Identity
Natural Additive Identity
Finite Sets
Arithmetic
Identity Elements
Equivalent Sets
Integer Sums
Integer Order
Natural Powers
Comparisons
Operations
Function Inverses
Family Unions and Intersections
Integer Numbers
Natural Products
Orders
Function Images
Function Composites
Families
Natural Sums
Equivalence Relations
Natural Order
Converse Relations
Functions
Recursion Theorem
Relations
Peano Axioms
Ordered Pair Projections
Natural Induction
Characteristic Functions
Set Products
Subset Systems
Natural Numbers
Set Powers
Generalized Set Dualities
Ordered Pairs
Set Symmetric Differences
Partitions
Intersection of Empty Set
Successor Sets
Unordered Triples
Set Dualities
Set Unions and Intersections
Set Complements
Set Intersections
Pair Unions
Set Differences
Set Unions
Pair Intersections
Empty Set
Unordered Pairs
Geometry
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects