Why

Toward a theory of iterated integrals, we need to know that set and function sections are measurable.

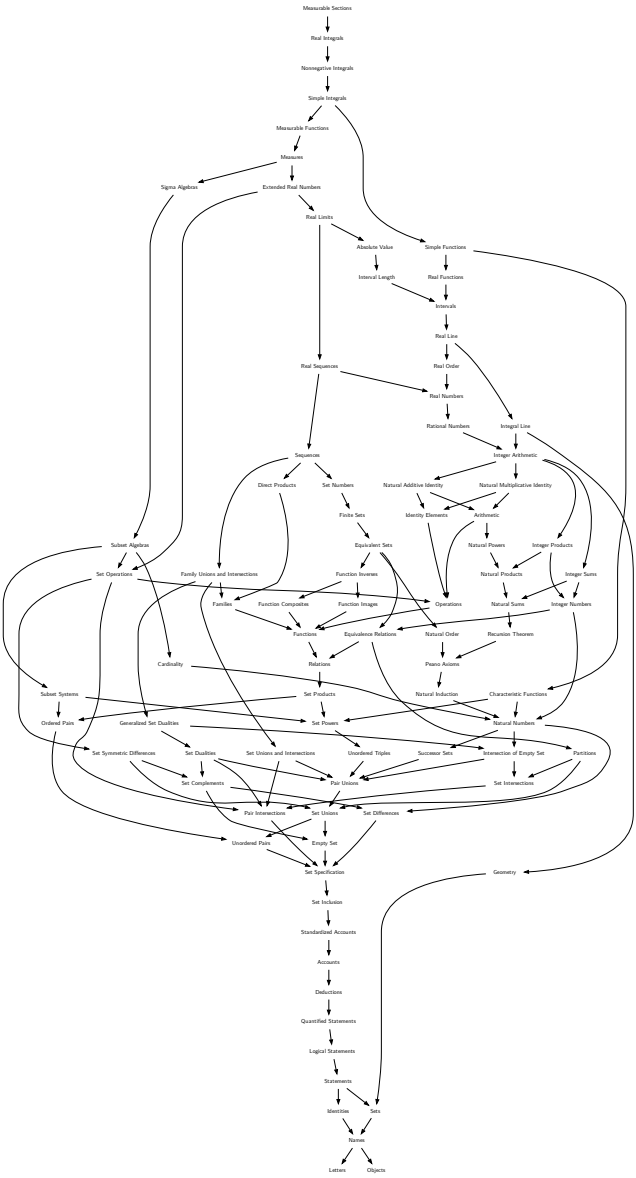
Results

Prop. 1. *Let $(X, \mathcal{A})$ and $(Y, \mathcal{B})$ be measurable spaces. For any $E \in \mathcal{A} \times \mathcal{B}$, the sections E_x and E^y are measurable for any $x \in X$ and $y \in Y$.*

Proof. TODO □

Prop. 2. *Let $(X, \mathcal{A})$ and $(Y, \mathcal{B})$ be measurable spaces. Let $f : X \times Y \to F$, where F is the extended real numnbers or the complex numbers, and f is measurable (using the appropriate sigma algebra of the codomain). The sections $f_x : Y \to F$ and $f^y : X \to F$ are measurable for each $x \in X$ and $y \in Y$.*

Proof. TODO □


Measurable Sections
Real Integrals
Nonnegative Integrals
Simple Integrals
Measurable Functions
Measures
Sigma Algebras
Extended Real Numbers
Real Limits
Absolute Value
Simple Functions
Interval Length
Real Functions
Intervals
Real Line
Real Sequences
Real Order
Real Numbers
Rational Numbers
Integral Line
Integer Arithmetic
Sequences
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
Operations
Families
Function Composites
Function Images
Natural Sums
Integer Numbers
Functions
Equivalence Relations
Natural Order
Recursion Theorem
Cardinality
Relations
Peano Axioms
Subset Systems
Set Products
Natural Induction
Characteristic Functions
Ordered Pairs
Set Powers
Natural Numbers
Generalized Set Dualities
Set Symmetric Differences
Set Dualities
Set Unions and Intersections
Unordered Triples
Successor Sets
Intersection of Empty Set
Partitions
Set Complements
Pair Unions
Set Intersections
Pair Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Set Specification
Geometry
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects