Why

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

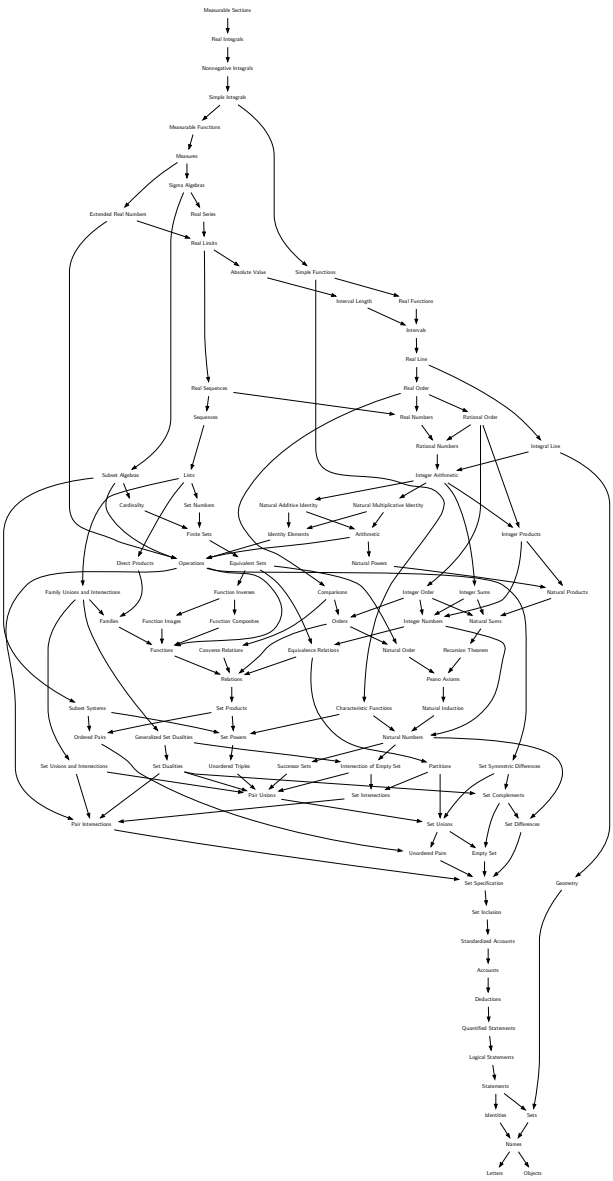
Results

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 Series
Real Limits
Absolute Value
Simple Functions
Interval Length
Real Functions
Intervals
Real Line
Real Order
Real Sequences
Sequences
Real Numbers
Rational Order
Rational Numbers
Integral Line
Subset Algebras
Lists
Integer Arithmetic
Cardinality
Set Numbers
Natural Additive Identity
Natural Multiplicative Identity
Finite Sets
Identity Elements
Arithmetic
Integer Products
Direct Products
Operations
Equivalent Sets
Natural Powers
Natural Products
Family Unions and Intersections
Function Inverses
Comparisons
Integer Order
Integer Sums
Families
Function Images
Function Composites
Orders
Integer Numbers
Natural Sums
Functions
Converse Relations
Equivalence Relations
Natural Order
Recursion Theorem
Relations
Peano Axioms
Subset Systems
Set Products
Characteristic Functions
Natural Induction
Ordered Pairs
Generalized Set Dualities
Set Powers
Natural Numbers
Set Unions and Intersections
Set Dualities
Unordered Triples
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
Geometry
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects