Central Limit Theorem

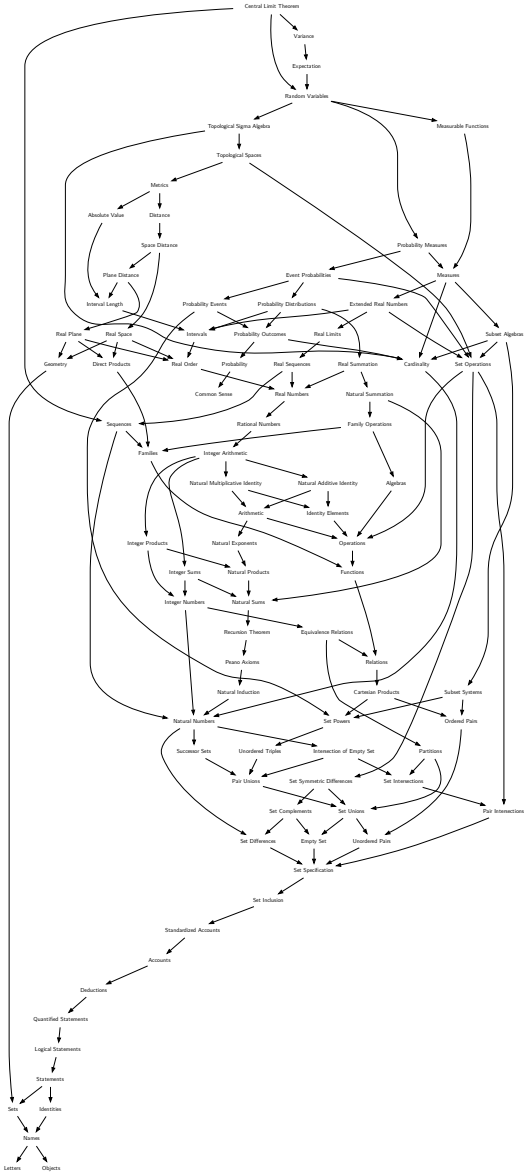
Why

The sum of several independent and identically distributed random variables tends toward a normal distribution. TODO, and defined "tends"

Result

Proposition **1.** *Let $(X, \mathcal{A}, \mu)$ be a probability space. Let $(f_n)_n$ be a sequence of independent and identically distributed real-valued random variables on X with $\mathbf{E}(f_n) = \mu < \infty$ and $\mathbf{var}(f_n) = \sigma^2 < \infty$ for all n. Define $s_n = \sum_{i=1}^{n} f_i$. For all real numbers t,*

$$\lim_{n\to\infty} \mu\left(\left\{x \in X \;\middle|\; \frac{s_n(x) - n\mu}{\sigma\sqrt{n}} \leq t\right\}\right) = \Phi(t).$$


Central Limit Theorem
Variance
Expectation
Random Variables
Topological Sigma Algebra
Measurable Functions
Topological Spaces
Metrics
Absolute Value
Distance
Space Distance
Probability Measures
Plane Distance
Event Probabilities
Measures
Interval Length
Probability Events
Probability Distributions
Extended Real Numbers
Real Plane
Real Space
Intervals
Probability Outcomes
Real Limits
Subset Algebras
Geometry
Direct Products
Real Order
Probability
Real Sequences
Real Summation
Cardinality
Set Operations
Common Sense
Real Numbers
Natural Summation
Sequences
Rational Numbers
Family Operations
Families
Integer Arithmetic
Natural Multiplicative Identity
Natural Additive Identity
Algebras
Arithmetic
Identity Elements
Integer Products
Natural Exponents
Operations
Integer Sums
Natural Products
Functions
Integer Numbers
Natural Sums
Recursion Theorem
Equivalence Relations
Peano Axioms
Relations
Natural Induction
Cartesian Products
Subset Systems
Natural Numbers
Set Powers
Ordered Pairs
Successor Sets
Unordered Triples
Intersection of Empty Set
Partitions
Pair Unions
Set Symmetric Differences
Set Intersections
Set Complements
Set Unions
Pair Intersections
Set Differences
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects