### Why

We talk about sequences in a metric space which are "bunching up."

### Definition

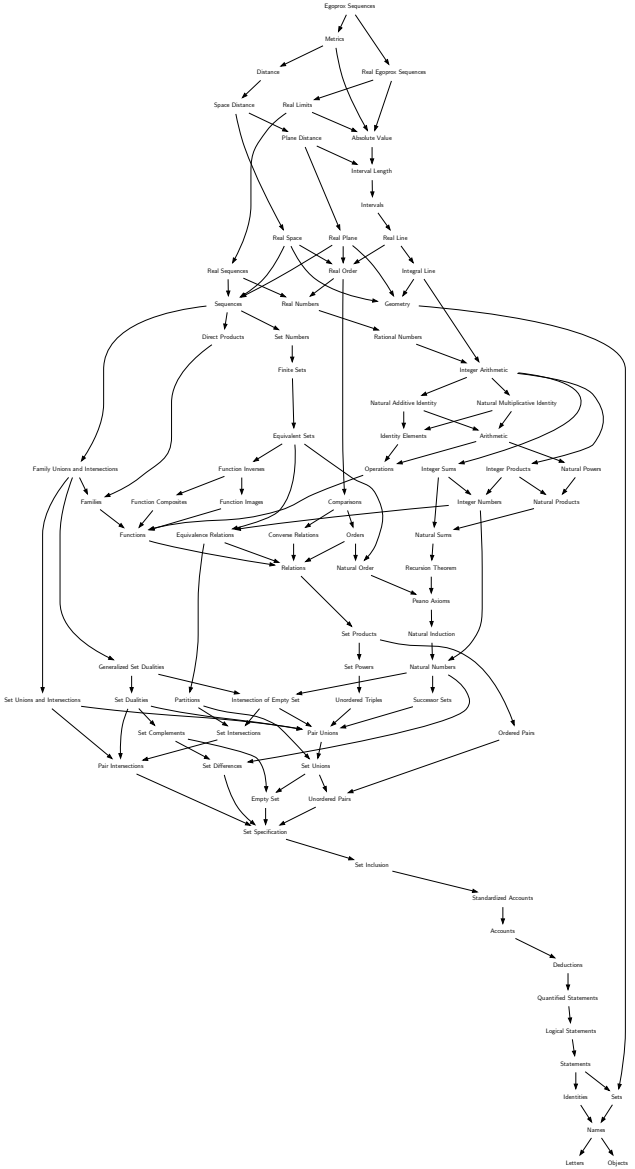
A sequence in a metric space is *egoprox* (or *Cauchy*) if for every positive real number, there exists a final part of the sequence so that any two terms are less than the positive number apart.[1]

### Notation

Let $(X, d)$ be a metric space. Then $(x_n)_{n \in \mathbf{N}}$ a sequence in $X$ is egoprox if, for every $\varepsilon > 0$, there exists $N \in \mathbf{N}$ so that, for all $m, n \geq N$

$$d(x_n, x_m) < \varepsilon.$$

[1] The term Cauchy is universal, but in accordance with the Bourbaki project's guidelines on naming, we will tend to use the term egoprox.


Egoprox Sequences
Metrics
Distance
Real Egoprox Sequences
Space Distance
Real Limits
Plane Distance
Absolute Value
Interval Length
Intervals
Real Space
Real Plane
Real Line
Real Sequences
Real Order
Integral Line
Sequences
Real Numbers
Geometry
Direct Products
Set Numbers
Rational Numbers
Finite Sets
Integer Arithmetic
Natural Additive Identity
Natural Multiplicative Identity
Identity Elements
Arithmetic
Equivalent Sets
Family Unions and Intersections
Function Inverses
Operations
Integer Sums
Integer Products
Natural Powers
Families
Function Composites
Function Images
Comparisons
Integer Numbers
Natural Products
Functions
Equivalence Relations
Converse Relations
Orders
Natural Sums
Relations
Natural Order
Recursion Theorem
Peano Axioms
Set Products
Natural Induction
Generalized Set Dualities
Set Powers
Natural Numbers
Set Unions and Intersections
Set Dualities
Partitions
Intersection of Empty Set
Unordered Triples
Successor Sets
Set Intersections
Pair Unions
Ordered Pairs
Set Complements
Pair Intersections
Set Differences
Set Unions
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects