Why

We might expect similar precepts to lead to similar postcepts.

Definition

Consider a set of inputs X with a metric $d : X \times X \to \mathbf{R}$ Let $D = (x^1, y^1), \ldots, (x^n, y^n)$ a dataset in $X \times Y$ The *nearest-neighbor predictor* is the predictor $f : X \to Y$ which assigns to $x \in X$ the value ...

Notation

Let $D = ((a^1, b^1), \ldots, (a^n, b^n))$ be a dataset in $A \times B$, where A and B are non-empty sets. Let f be the nearest neighbor inductor. Then $\iota(D)(x)$ is Let n be a natural number. Let Ξ be a length n paired record sequence in $\mathcal{U} \times \mathcal{V}$; so

$$\Xi = ((u^1, v^1), \ldots, (u^n, v^n))$$

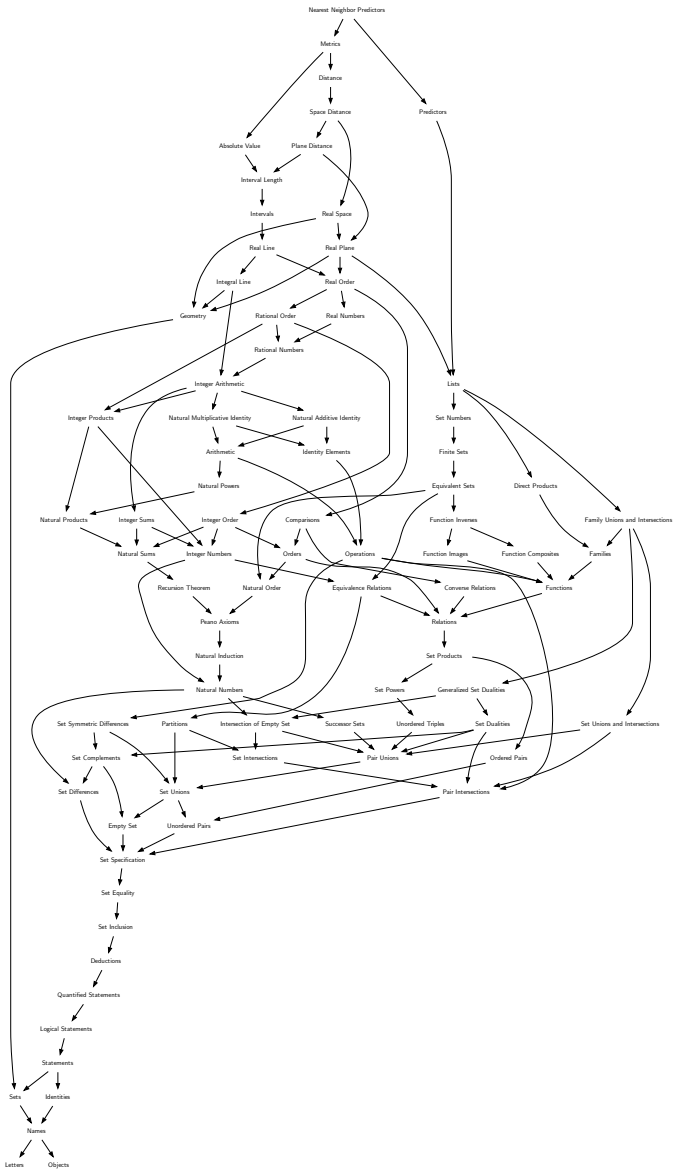
with $u^i \in \mathcal{U}$ and $v^i \in \mathcal{V}$ for $i = 1, \ldots, n$.

The nearest neighbor induction associates Ξ with the function f_Ξ such that

$$f_\Xi(u) = v^j$$

where $j < n$ is the largest integer such that

$$d(u, u^j) = \min_i \{d(u, u^i)\}.$$


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