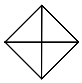


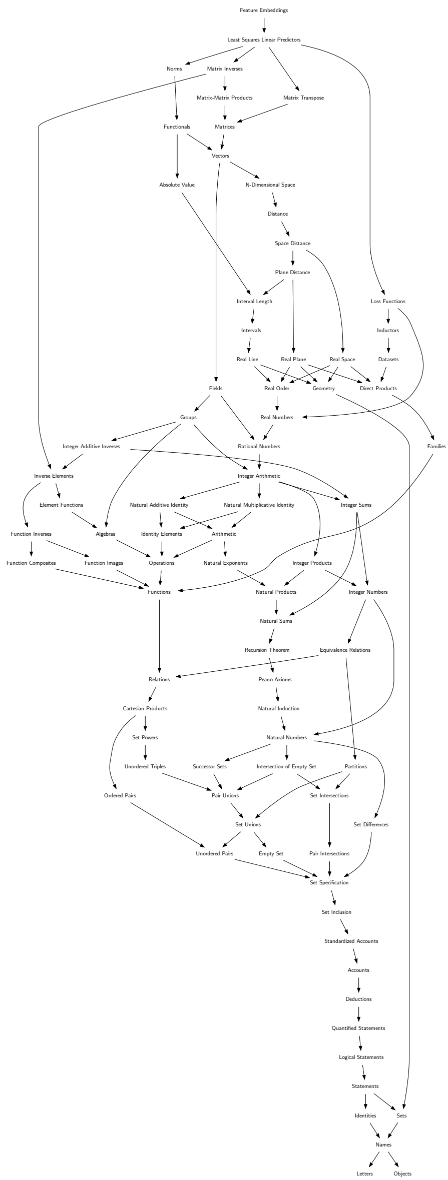
Why

Linear predictors are simple and we know how to select the parameters, but the main drawback is that we there may not be a linear relationship between inputs and outputs.

Definition

A *feature embedding* for postcepts A is a mapping $\phi : A \to \mathsf{R}^d$. In this setting, we call $a \in A$ the *raw input record* and we call $\phi(a)$ an *embedding*, *feature embedding* of *feature vector*. A feature embedding is *faithful* if, whenever records a_i and a_j are in some sense "similar" in the set A, the embeddings $\phi(a_i)$ and $\phi(a_j)$ are close in the vector space R^d.

Since it is common for raw input records $a \in A$ to consist of many fields, in is regular to have several embedding functions ϕ_i which operate component-wise on the fields of a. We concatenate these field embeddings and commonly add a constant feature 1. Since R^d is a vector space, it is common to refer to it in this case as the *feature space*.


Feature Embeddings
Least Squares Linear Predictors
Norms
Matrix Inverses
Matrix-Matrix Products
Matrix Transpose
Functionals
Matrices
Vectors
Absolute Value
N-Dimensional Space
Distance
Space Distance
Plane Distance
Interval Length
Loss Functions
Intervals
Inductors
Real Line
Real Plane
Real Space
Datasets
Fields
Real Order
Geometry
Direct Products
Groups
Real Numbers
Integer Additive Inverses
Rational Numbers
Families
Inverse Elements
Integer Arithmetic
Element Functions
Natural Additive Identity
Natural Multiplicative Identity
Integer Sums
Function Inverses
Algebras
Identity Elements
Arithmetic
Function Composites
Function Images
Operations
Natural Exponents
Integer Products
Functions
Natural Products
Integer Numbers
Natural Sums
Recursion Theorem
Equivalence Relations
Relations
Peano Axioms
Cartesian Products
Natural Induction
Set Powers
Natural Numbers
Unordered Triples
Successor Sets
Intersection of Empty Set
Partitions
Ordered Pairs
Pair Unions
Set Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Pair Intersections
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects