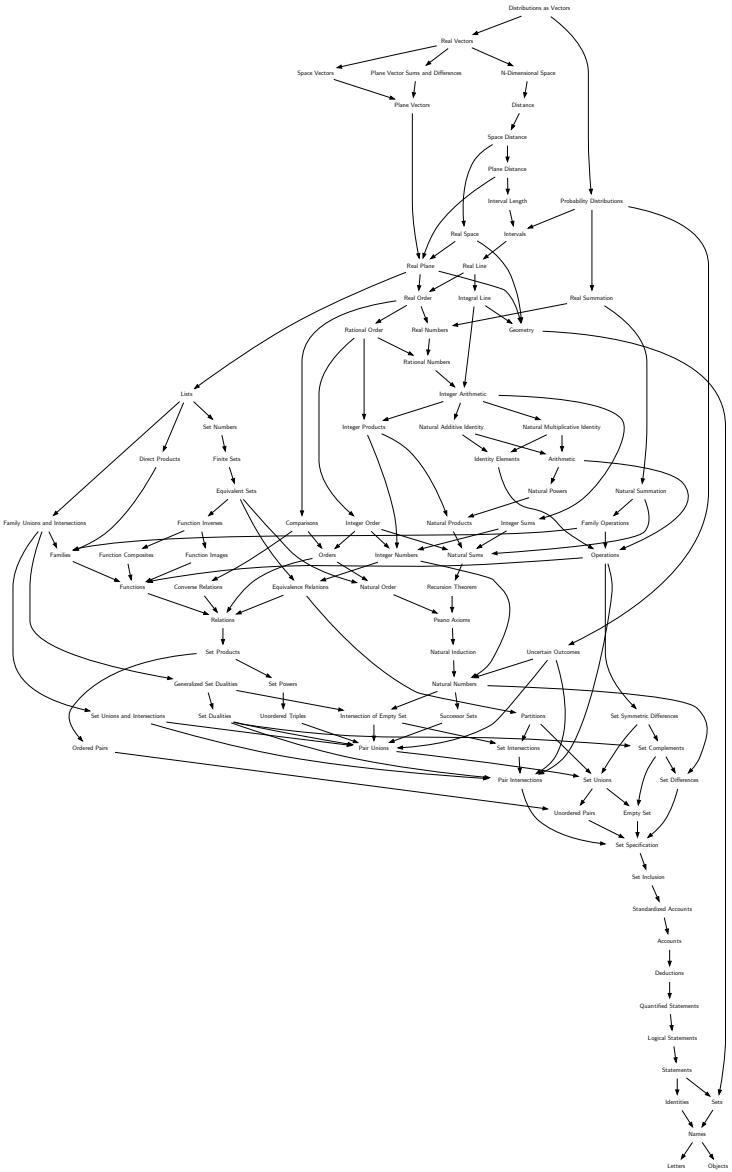
### Why

We can identify probability distributions with vectors.

### Definition

Let $p : A \to \mathbf{R}$ be a probability distribution on a set finite $A$ of $n$ elements. Given a numbering $a : \{1, \ldots, n\} \to A$ of $A$, we can associate $p$ with the vector $z \in \mathbf{R}^n$ defined by $z_i = p(a_i)$. We call this vector $z$ the *probability vector* associated with $p$.


Distributions as Vectors
Real Vectors
Space Vectors
Plane Vector Sums and Differences
N-Dimensional Space
Plane Vectors
Distance
Space Distance
Plane Distance
Interval Length
Probability Distributions
Real Space
Intervals
Real Plane
Real Line
Real Order
Integral Line
Real Summation
Rational Order
Real Numbers
Geometry
Rational Numbers
Lists
Integer Arithmetic
Set Numbers
Integer Products
Natural Additive Identity
Natural Multiplicative Identity
Direct Products
Finite Sets
Identity Elements
Arithmetic
Equivalent Sets
Natural Powers
Natural Summation
Family Unions and Intersections
Function Inverses
Comparisons
Integer Order
Natural Products
Integer Sums
Family Operations
Families
Function Composites
Function Images
Orders
Integer Numbers
Natural Sums
Operations
Functions
Converse Relations
Equivalence Relations
Natural Order
Recursion Theorem
Relations
Peano Axioms
Set Products
Natural Induction
Uncertain Outcomes
Generalized Set Dualities
Set Powers
Natural Numbers
Set Unions and Intersections
Set Dualities
Unordered Triples
Intersection of Empty Set
Successor Sets
Partitions
Set Symmetric Differences
Ordered Pairs
Pair Unions
Set Intersections
Set Complements
Pair Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects