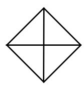


Why

We name sequences of sequences, and other such generalizations.

Definition

Let s be a sequence of natural numbers: $s = (n_1, \dots, n_d)$. An *array* of *size* (or *shape*) s is a function whose domain is the set

$$I = \{(m_1, \dots, m_d) \mid 1 \leq m_1 \leq n_1, \dots, 1 \leq m_d \leq n_d\}.$$

We call the set I the set of *indices* of the array. We call the codomain of the function the set of *values* of the array. If A is the set of values, we say that the array is *in* A. We call the length of s (here denoted d) the *dimension* of the array.

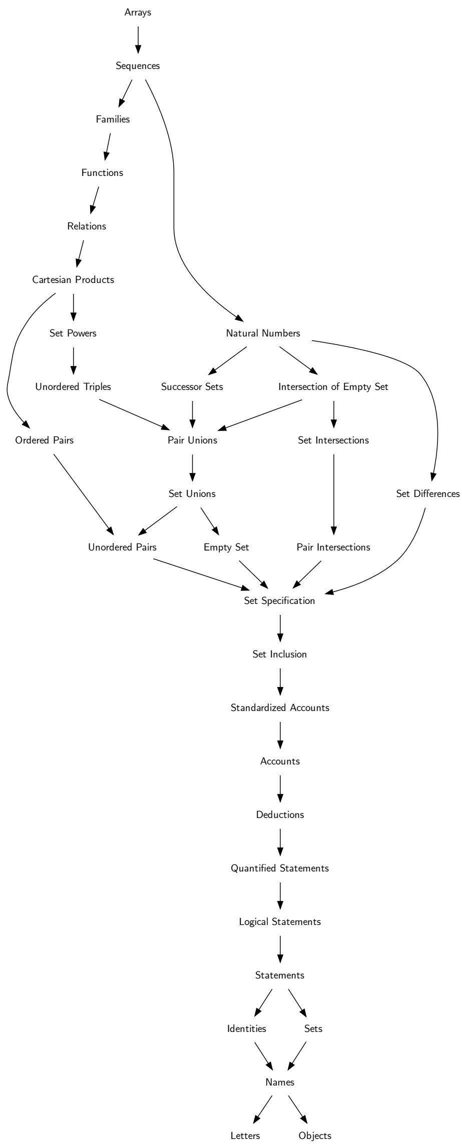
Case $d = 1$

If the shape of the array has length one, then the array is no different from a sequence. In this case, the terminology for arrays coincides with that for sequences.

Case $d = 2$

If the shape of the array has length two, then the array can be thought of as a table with n_1 rows and n_2 columns.[1] We say that the array is two-dimensional.

[1] Compare with Matrices


Arrays
Sequences
Families
Functions
Relations
Cartesian Products
Set Powers
Natural Numbers
Unordered Triples
Successor Sets
Intersection of Empty Set
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