Why

Definition

The *sum* of two subspaces is the span of their union. So then the sum of two subspaces is also a subspace. If the intersection of two subspaces is the zero subspace, we call the sum a *direct sum*.

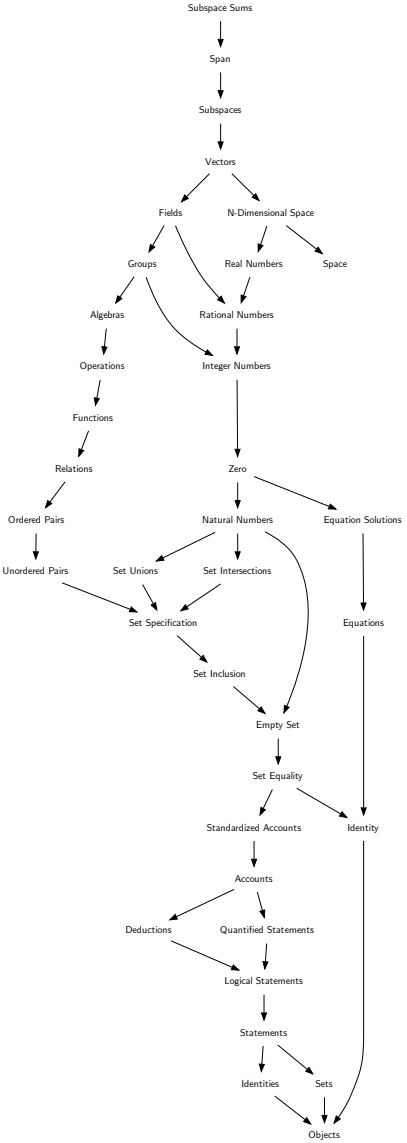
Notation

Let U and V be subspaces of a vector space. We denote the sume of U and V by $U + V$. We can express

$$U + V = \textbf{span}(U + V).$$

Let $\mathbf{0}$ denote the zero vector. If $S_1 \cap S_2 = \{\mathbf{0}\}$

TODO: something about uniqueness of representation


Subspace Sums
Span
Subspaces
Vectors
Fields
N-Dimensional Space
Groups
Real Numbers
Space
Algebras
Rational Numbers
Operations
Integer Numbers
Functions
Relations
Zero
Ordered Pairs
Natural Numbers
Equation Solutions
Unordered Pairs
Set Unions
Set Intersections
Set Specification
Equations
Set Inclusion
Empty Set
Set Equality
Standardized Accounts
Identity
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Objects