Why

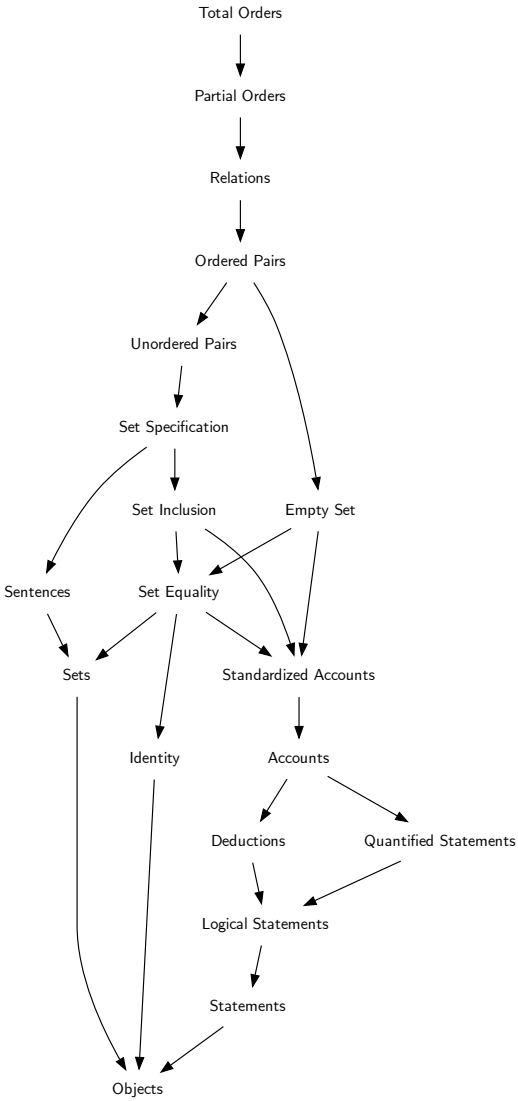
Often we want all elements of the set A to be comparable.

Definition

We call R *connexive* if for all $a, b \in A$, $(a, b) \in R$ or $(b, a) \in R$. If R is a partial order and connexive, we call it a *total order*.

A *totally ordered set* is a set together with a total order. The language is a faithful guide: we can compare any two elements. Still, we prefer one word to three, and so we will use the shorter term *chain* for a totally ordered set; other terms include *simply ordered set* and *linearly ordered set*.

Let $C = (A, R)$ be a chain. A *minimal element* of C is an element which precedes all other elements. A *maximial element* of C is an element which is preceded by all other elements.


Total Orders
Partial Orders
Relations
Ordered Pairs
Unordered Pairs
Set Specification
Set Inclusion
Empty Set
Sentences
Set Equality
Sets
Standardized Accounts
Identity
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Objects