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

Cartesian Products

Set Powers

Ordered Pairs

Unordered Triples

Pair Unions

Set Unions

Unordered Pairs

Empty Set

Set Specification

Set Inclusion

Standardized Accounts

Definitions

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Objects

Letters