Why

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There is a natural orientation of an ordered undirected graph.

Motivating Result

An ordered undirected graph can be converted into a directed graph by orienting the eges from lower to higher index. The *orientation* of an ordered undirected graph $((V, E), \sigma)$ is the directed graph (V, F) where

$$\{v, w\} \in V \longrightarrow (v, w) \in F \text{ and } \sigma^{-1}(v) < \sigma^{-1}(w).$$

In other words, we can "convert" the ordered undirected graph by "orienting" the edges from lower to higher index.

Proposition 1. *Let $G = ((V, E), \sigma)$ be an ordered undirected graph. The orientation of G is acyclic.*

Proof. Contradiction on the existence of a cycle.[2] □

Conversely, consider the directed acyclic graph (V, F). To each topological numbering of σ (V, F) (see Directed Paths) there exists an ordered undirected graph $((V, E), \sigma)$ where (V, E) is the skeleton of (V, F).

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[1]Future editions will include.

[2]Future editions will expand.

Ordered Undirected Graph Orientations

Directed Paths

Ordered Undirected Graphs

Directed Graphs

Sequences

Undirected Graphs

Direct Products

Set Numbers

Finite Sets

Equivalent Sets

Family Unions and Intersections

Natural Order

Function Inverses

Families

Peano Axioms

Function Composites

Function Images

Natural Induction

Equivalence Relations

Functions

Relations

Generalized Set Dualities

Natural Numbers

Cartesian Products

Intersection of Empty Set

Successor Sets

Partitions

Set Powers

Set Unions and Intersections

Set Intersections

Set Dualities

Unordered Triples

Pair Intersections

Set Complements

Pair Unions

Set Differences

Set Unions

Ordered Pairs

Empty Set

Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Letters

Objects