Filled Graphs

Why

TODO Needed for perfect elimination orderings.

Definition

An ordered graph is *filled* or *monotone transitive* if all higher neighborhoods induce complete subgraphs.

Notation

Let $G_\sigma = (V, E, \sigma)$ be an ordered graph. G_σ is filled if

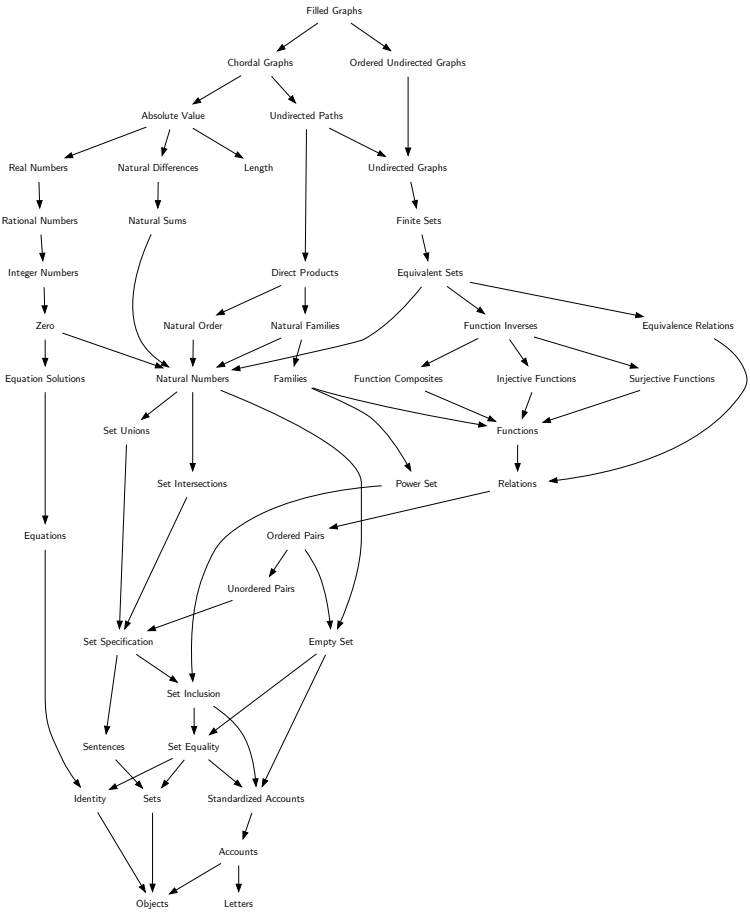
$$u, v \in \overset{+}{\mathsf{adj}}(v) \implies \{u, v\} \in E.$$

In other word, if $i < j < k$ so that $\{\sigma(i), \sigma(j)\} \in E$ and $\{\sigma(i), \sigma(k)\} \in E$ then $\{\sigma(j), \sigma(k)\} \in E$.

Chordality

Proposition **1.** *If (V, E, σ) is a filled graph, then (V, E) is chordal.*

Proof. Take the vertex with the lowest index on a cycle of length greater than three. Take $\square$


Filled Graphs
Chordal Graphs
Ordered Undirected Graphs
Absolute Value
Undirected Paths
Real Numbers
Natural Differences
Length
Undirected Graphs
Rational Numbers
Natural Sums
Finite Sets
Integer Numbers
Direct Products
Equivalent Sets
Zero
Natural Order
Natural Families
Function Inverses
Equivalence Relations
Equation Solutions
Natural Numbers
Families
Function Composites
Injective Functions
Surjective Functions
Set Unions
Functions
Set Intersections
Power Set
Relations
Equations
Ordered Pairs
Unordered Pairs
Set Specification
Empty Set
Set Inclusion
Sentences
Set Equality
Identity
Sets
Standardized Accounts
Accounts
Objects
Letters