Family Operations

1 Why

We want to generalize operations beyond two objects.

2 Operations

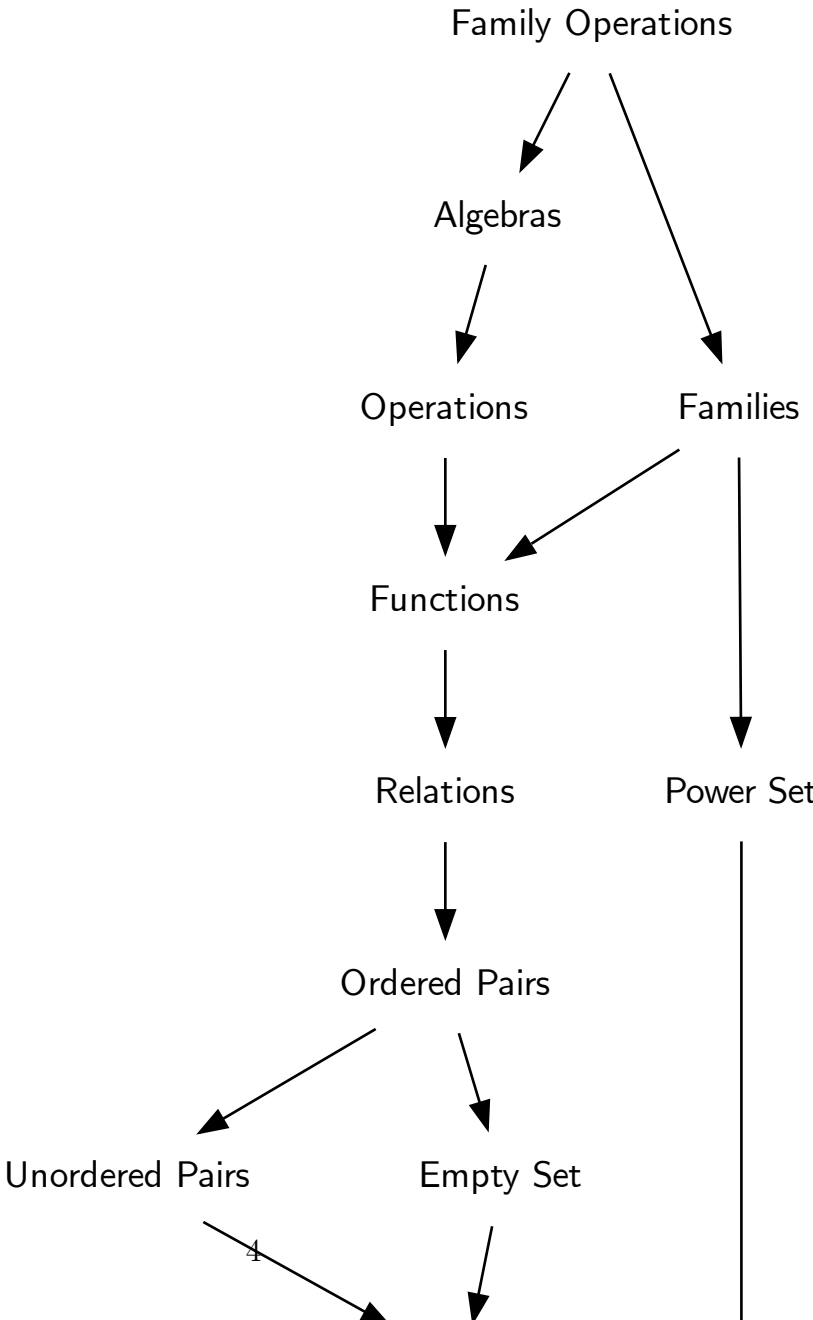
The *pairwise extension* of a commutative operation is the function from finite families of the ground set to the ground set obtained by applying the operation pairwise to elements. TODO: this is not a function if the operation is not commutative.

The *ordered pairwise extension* of an operation is the function from finite families ground set to the ground set obtained by applying the operation pairwise to elements in order.

2.1 Notation

Let $(A, +)$ be an algebra and $\{A_i\}_{i=1}^n$ a finite family of elements of A. We denote the pairwise extension by

$$\overset{n}{\underset{i=1}{+}} A_i$$


Family Operations
Algebras
Operations
Families
Functions
Relations
Power Set
Ordered Pairs
Unordered Pairs
Empty Set