Why

If all sets considered in a union or intersection are subsets of a fixed set, then the union and intersection of any set of sets is well defined. We can then derive generalized version of DeMorgan's laws.[1]

New notation

Let E denote a set. Let $\mathcal{A}$ denote a set of subsets of E. Then define

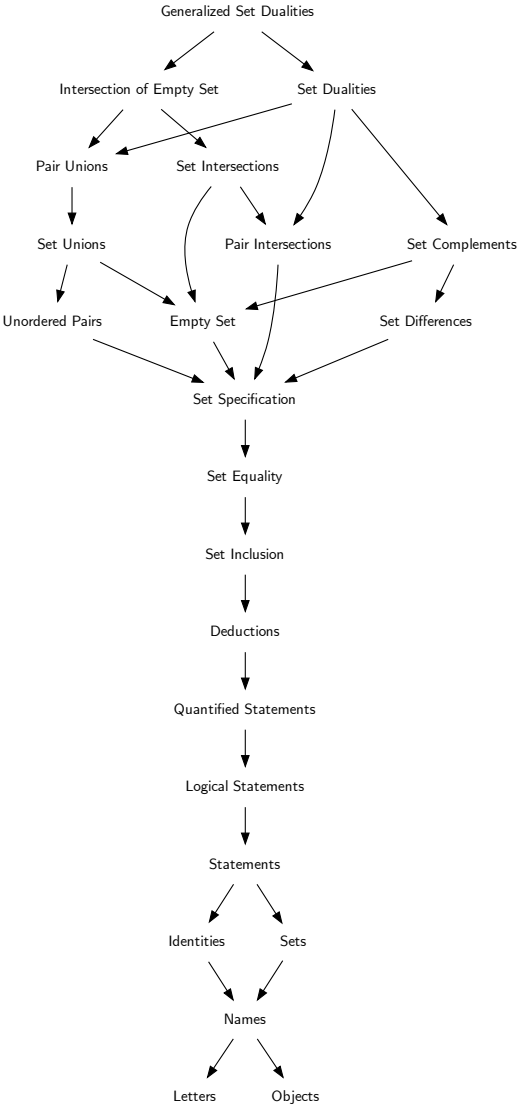
$$\bigcup_{A\in\mathcal{A}} A := \bigcup \mathcal{A}, \quad \bigcap_{A\in\mathcal{A}} A := \bigcap \mathcal{A}.$$

In this case we have

Proposition 1. $C(\cup_{A\in\mathcal{A}} A) = \cap_{A\in A} C(A)$.

Proposition 2. $C(\cap_{A\in\mathcal{A}} A) = \cup_{A\in A} C(A)$.

[1] In future editions, this sheet may not exist.


Generalized Set Dualities
Intersection of Empty Set
Set Dualities
Pair Unions
Set Intersections
Set Unions
Pair Intersections
Set Complements
Unordered Pairs
Empty Set
Set Differences
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects