Why

Let E denote a set and let A denote a set with $A \subset E$. A and $C(A)$ as breaking E into two pieces which do not overlap.

Discussion for complements

To make this precise, let us say that by "breaking E into two pieces" we mean that these two pieces are all of E. In other words, every element of E is contained either in A or $C(A)$. We use the language of set unions (*Pair Unions*).

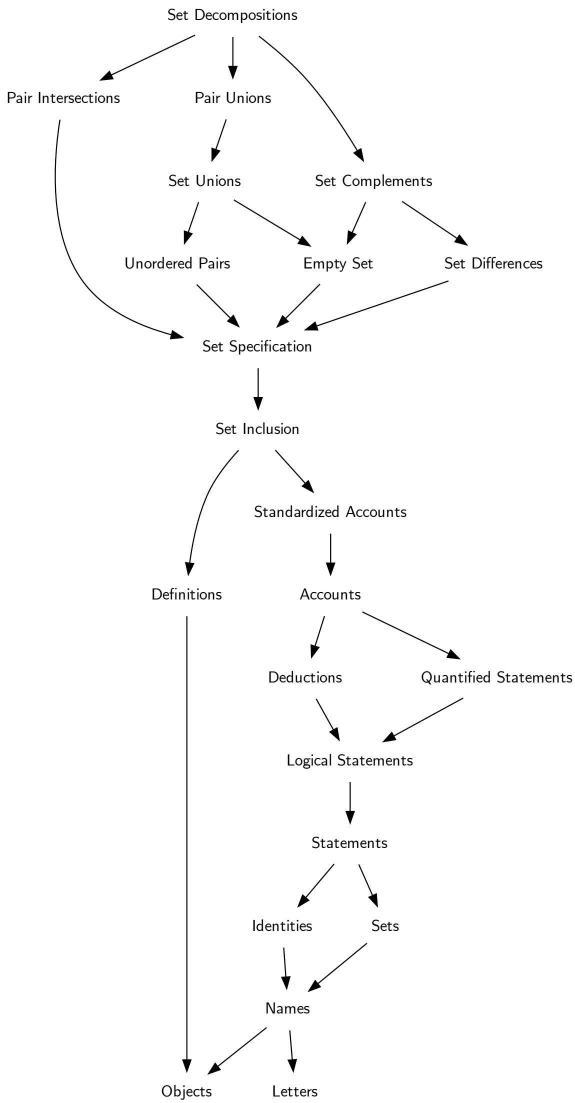
Proposition 1 (Breaking). $A \cup C(A) = E$

Next, let us say that "do not overlap" means that no elemenet of A is an element of $C(A)$ and vice versa. We use the language of set interserctions (see *Pair Intersections*).

Proposition 2 (Non-overlapping). $A \cap C(A) = \varnothing$

Definition

We call a pair $\{A, B\}$ a *decomposition* of E if $A \cap B = \varnothing$ and $A \cup B = E$. If $A \cap B$ we say that $\{A, B\}$ are *disjoint*. If we have a set of sets $\mathcal{A}$ satisfying $(A \in \mathcal{A} \land B \in \mathcal{A}) \longrightarrow (A \cap B = \varnothing)$ then we call $\mathcal{A}$ *pairwise disjoint*.


Set Decompositions
Pair Intersections
Pair Unions
Set Unions
Set Complements
Unordered Pairs
Empty Set
Set Differences
Set Specification
Set Inclusion
Standardized Accounts
Definitions
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Objects
Letters