Why

We want to talk about a set of objects associated with some uncertain outcome, one for each outcome. We use a correspondence between each outcome and its corresponding object in the second set.

Definition

Let Ω be a set of outcomes. An *outcome variable* is function whose domain is Ω. We call the codomain of the function the set of *values* of the outcome variable. If the set is named $_$, we call the function a $_$-valued outcome variable on Ω. Often Ω is fixed, and clear form context, and we drop the final prepositional phrase "on Ω."

Other terminology

The standard terminology is to refer to an outcome variable as a *random variable*.[1]

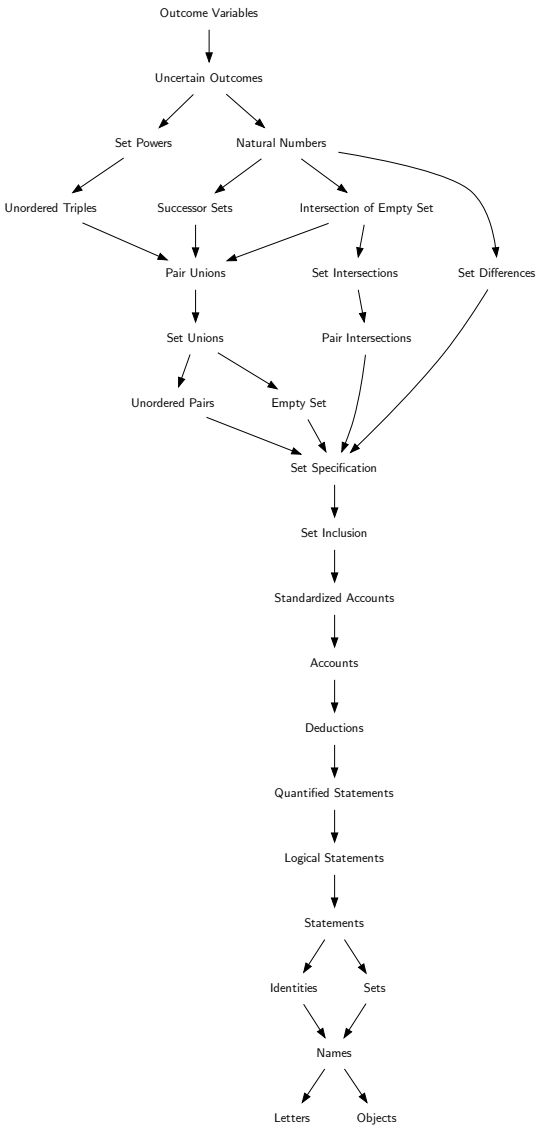
Example: two dice

Let $D = \{1, 2, 3, 4, 5, 6\}$. Consider the set of outcomes $A = D \times D$. An outcome variable associated with A is the function $s : A \to \mathsf{N}$ which is defined by

$$s((d_1, d_2)) = d_1 + d_2.$$

[1] Future editions may do so. For now, this is avoided in contrast with the notion of measurability required for random variables.

We interpret the outcome variable s as the sum of the two dice.


Outcome Variables
Uncertain Outcomes
Set Powers
Natural Numbers
Unordered Triples
Successor Sets
Intersection of Empty Set
Pair Unions
Set Intersections
Set Differences
Set Unions
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects