## 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 $\Omega$ be a set of outcomes. An *outcome variable* is function whose domain is $\Omega$. 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 $\Omega$. Often $\Omega$ is fixed, and clear form context, and we drop the final prepositional phrase "on $\Omega$."

### 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 $s : A \to \mathbf{N}$ which is defined by

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

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[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