



## Why

We want to talk about objects associated with an uncertain outcome. We use a correspondence between each outcome and objects of another 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. The standard terminology is to refer to an outcome variable as a *random variable*.<sup>1</sup>

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

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

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

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



