Info

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Random V-variables on a probability space

Definition. Random variable *or* observables

A random V-variable *or* observable on the probability space $(M, \mathcal{A}_M, \mathcal{P})$ is a *measurable function*

$$X : M \to V$$

to a measurable space $(V, \mathcal{A}_V)$ which means for every Borel set $B \subseteq V$

$$X^{-1}(B) \in \mathcal{A}_M$$

Definition. Probability distribution of a random variable $X : (M, \mathcal{A}_M, \mathcal{P}) \to (V, \mathcal{A}_V)$

The function $\mu_X : \mathcal{A}_V \to \mathbb{R}$

$$\mu_X(B) := \mathcal{P}(X^{-1}(B))$$

is called the **probability distribution of** X.

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makes

$$(V, \mathcal{B}(\mathcal{T}_V), \mu_X)$$

a probability space.

Current note has 0 direct children and 0 total descendants.

- structures based on sets
  - Measure spaces
    - Functions on measure spaces
      - Random V-variables on a probability space

And it has 2 siblings.

- structures based on sets
  - Measure spaces
    - Functions on measure spaces
      - Stochastic processes on a probability space
      - Random V-variables on a probability space