

Definition 1:

- (i) If a set A is in \mathcal{A} so is its complement $A^c = \Omega - A$
- (ii) If $\{A_n\}$ is any countable collection of sets in \mathcal{A} , then also their union $\cup A_n$ and intersection $\cap A_n$ belong to \mathcal{A} .

a σ -Algebra is a family \mathcal{A} of subsets of a given set Ω with (i) and (ii)

from a family \mathcal{F} of sets in Ω the smallest σ -algebra containing all sets in \mathcal{F} is called

- (3) σ -alg. generated by " \mathcal{F} "
- (4) Generated by intervals

The sets generated by the intervals of \mathbb{R}^n are called Borel sets of \mathbb{R}^n .

Eigenschaften 1-3: Topologischer Raum
 " 1-4: Hausdorff'scher Raum

A Probability Space is a triple (Ω, \mathcal{A}, P)

of a sample space Ω
 a σ -algebra \mathcal{A} of sets in Ω
 and a probability measure P on \mathcal{A} .