

References

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Symbol Index

- \subset $A \subset B : \Leftrightarrow x \in A \Rightarrow x \in B$, page 2
- Ω Abstract set of elementary events, page 2
- \mathcal{F} σ -algebra/field on Ω , page 2
- \mathbb{P} Probability measure on \mathcal{F} , page 2
- \mathcal{B}^s The smallest σ -algebra in \mathbb{R}^s containing all open subsets of \mathbb{R}^s , page 2
- \mathbb{E} Expected value operator on $\{X \mid X : \Omega \rightarrow \mathbb{R} \cup \{\pm\infty\}, \mathcal{F} - \overline{\mathcal{B}}\text{-measurable}\}$:
 $\mathbb{E}(X) := \int_{\Omega} X d\mathbb{P}$ (if the integral exists), page 2
- \oplus Minkowski addition of sets, $A \oplus B := \{a + b : a \in A \wedge b \in B\}$, page 6
- \mathbb{P}_X Also $X(\mathbb{P})$, image measure of \mathbb{P} under X . $\mathbb{P}_X := \mathbb{P} \circ X^{-1}$, page 8
- $\mathbb{1}_A$ Characteristic function defined on a set Ω that indicates membership of an element in a subset A of Ω , being 1 iff $x \in A$ and 0 otherwise, page 8
- F_X Cumulative distribution function of the random variable X . $F_X(t) := \mathbb{P}\{X \leq t\} := \mathbb{P}[X^{-1}((-\infty, t])] = \mathbb{P}_X((-\infty, t])$, page 9
- $(\cdot)_+$ The positive part; $(\cdot)_+ := \max\{\cdot, 0\}$, page 9
- 2^M The power set of M , page 14
- \bar{A} Let A be a subset of B . $\bar{A} := \{b \in B : b \notin A\}$, page 17
- $\xrightarrow{\mathcal{D}}$ We say a sequence of random variables X_n converges in distribution to X , and write $X_n \xrightarrow{\mathcal{D}} X$, iff $\mathbb{P} \circ X_n^{-1} \xrightarrow{w} \mathbb{P} \circ X^{-1}$, page 20
- conv For $A \subset \mathbb{R}^n$, $\text{conv}(A)$ denotes the convex hull of A . This is the smallest convex superset containing A , page 53
- $\partial f(x_0)$ A vector $a \in \mathbb{R}^n$ is a subgradient of the convex function $f : \mathbb{R}^n \rightarrow \mathbb{R} \cup \{\pm\infty\}$ in x_0 iff $f(x) \geq f(x_0) + a^\top(x - x_0) \forall x \in \mathbb{R}^n$. $\partial f(x_0)$, called the subdifferential of f in x_0 is the set of all subgradients of f in x_0 , page 53