

## Positive Definite Matrices

## Why

## **Definition**

A matrix A is positive definite if all its quadratic forms are positive.

## Notation

Let  $A \in \mathbb{R}^{n \times n}$ . A is positive definite if for every  $x \in \mathbb{R}^d$ ,

$$x^T A x > 0.$$

We denote the set of real-valued positive definite d by d matrices by  $\mathbf{S}_{++}^d.$ 

