Lecture 6.1: What we will not be talking about

Optimization and Computational Linear Algebra for Data Science

Warning



The determinant

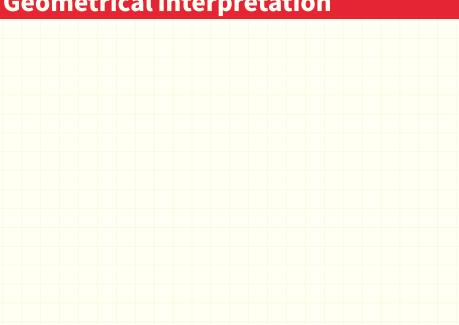
There exists a function $\det: \mathbb{R}^{n \times n} \to \mathbb{R}$ called *the determinant* that verifies

$$\det(M) = 0 \iff M$$
 is not invertible.

The determinant can be computed using the following formula:

$$\det(M) = \sum_{\sigma \in \mathfrak{S}_n} \epsilon(\sigma) \prod_{i=1}^n M_{i,\sigma(i)}$$

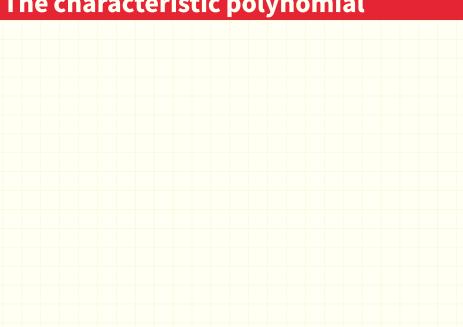
Geometrical interpretation



Link with eigenvalues



The characteristic polynomial



Example

