

## NORMAL MATRICES

## Why

Which matrices have orthogonal eigenvectors?

## **Definition**

A *normal matrix* is a matrix which has orthogonal eigenvectors. It commutes with its (conjugate) transpose.

## Notation

If  $A \in \mathbf{C}^{d \times d}$  is normal then there exists an orthonormal matrix  $Q \in \mathbf{C}^{d \times d}$  and a diagonal matrix  $\Lambda \in \mathbf{C}^{d \times d}$  so that  $A = Q\Lambda Q^{\top}$ .

