

## CONSTRAINED QUADRATIC FORM EXTREMA

## Why

Eigenvalues

## Result

PROPOSITION 1. A necessary condition for a maximizer of  $x^T A x$  subject to  $x \in \mathbb{R}^n$  and  $x^T x = 1$  is that  $A x = \lambda x$  where  $\lambda$  is the Lagrange multiplier... TODO: lagrange multiplier, gradient, quadratic form, necessary conditions, etc.

