



## Why

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## Result

**Proposition 1.** *A necessary condition for a maximizer of  $x^T Ax$  subject to  $x \in \mathbf{R}^n$  and  $x^T x = 1$  is that  $Ax = \lambda x$  where  $\lambda$  is the Lagrange multiplier...*<sup>2</sup>

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<sup>1</sup>Future editions will expand. Discussion will likely include eigenvalues.

<sup>2</sup>Future editions will complete, and include references to lagrange multiplier, gradient, quadratic form, necessary conditions, etc.

