p290. Example 6.1.

V 是 n 阶矩阵全体组成的 LS.

$\mathscr{A}$ 是 V 上的 LT: 即 $\mathscr{A}X = AX$.

A 为 n 阶矩阵. 求证 $\mathscr{A}$ 与 A 有~~相关单~~ 相同 eig values.

for X. it's $X \Rightarrow (x_1, x_2 \dots x_n)$. x_i is k^n.

$\mathscr{A}X = \mathscr{A}(x_1, x_2, \dots, x_n)$

$= (\mathscr{A}x_1, \mathscr{A}x_2, \dots, \mathscr{A}x_n)$.

$RHS = AX = A(x_1, x_2, \dots, x_n)$

$= (Ax_1, Ax_2, \dots, Ax_n) = \lambda_0(x_1, x_2 \dots x_n)$.

namely $\mathscr{A}x_i = Ax_i = \lambda_0 x_i$.

Q. E. D.