

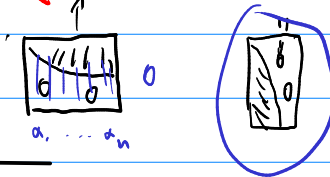
$$Ax=0 \Rightarrow x \in N(A)$$

$$PA=LU$$

$$A=P^T L U$$

$$N(A) = N(P^T L U) = N(U)$$

$$= \cancel{P^T L} N(U) \text{ nope}$$



$$\bar{P} A^T = \bar{L} \bar{U} \Leftrightarrow A^T = \bar{P}^T \bar{L} \bar{U} \quad |^T$$

$$\Leftrightarrow A = \bar{U}^T \bar{L}^T \bar{P}$$



$$N(A) = N(\bar{U}^T \bar{L}^T \bar{P})$$

$$= N(\bar{U}^T)$$

$$\uparrow$$

$$x \in N(\bar{U}^T)$$

$$x = \bar{L}^T \bar{P} y$$

$$(\bar{L}^T)^{-1} x = \bar{P} y$$

$$\bar{P}^T (\bar{L}^T)^{-1} x = y$$

$$\bar{P}^T (\bar{L}^T)^{-1} N(\bar{U}^T) = N(A)$$