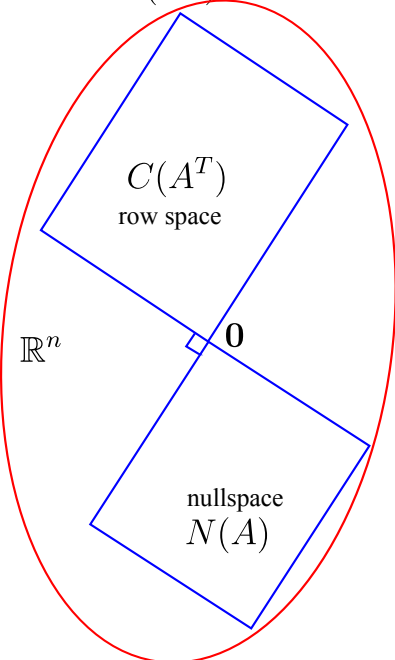
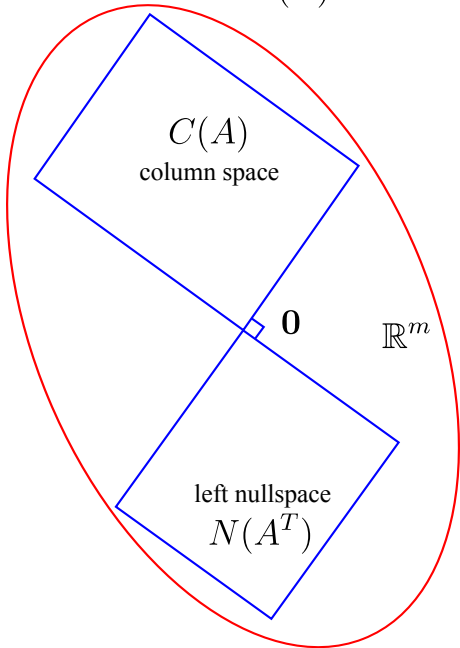


$$\dim C(A^T) = r$$



$$\dim N(A) = n - r$$

$$\dim C(A) = r$$



$$\dim N(A^T) = m - r$$