- **Row space** is span of all rows of A
  - Equivalently, $C(A^T)$
- **Left nullspace** is set of all vectors v such that $v^T A = 0$
  - Equivalently, $A^T v = 0$, or $N(A^T)$

We could calculate these by computing RREF of A^T

- There is a way to calculate this all from a single RREF of A but will omit here

Relationships

- Both $C(A)$ and $N(A^T)$ live in $\mathbb{R}^m$
  - Their dimensions add up to m and the subspaces are orthogonal to one another
  - That is, all vectors in $C(A)$ are orthogonal to those in $N(A^T)$
- Both $C(A^T)$ and $N(A)$ live in $\mathbb{R}^n$
  - Dimensions also add to n and these are orthogonal