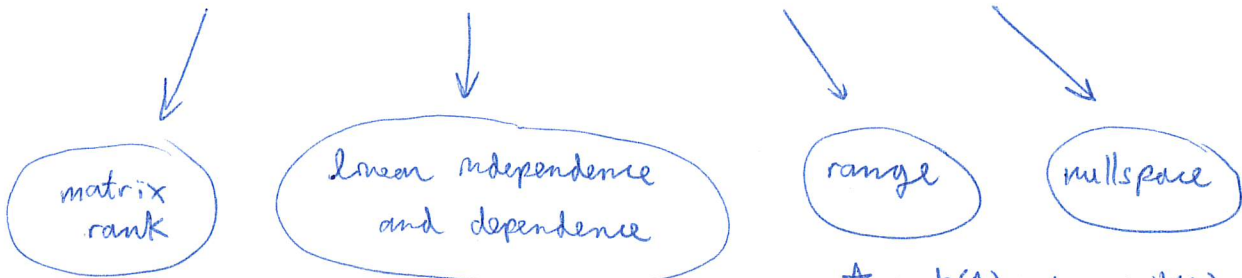


Key topics so far (in one page!)

basic properties of matrices, subspaces, norms, inner/outer products



$\star \text{rank}(A) + \dim \text{Null}(A) = n$

linear equations

- finding all solutions
- geometry
- existence/uniqueness of solns.

least squares problems

- optimization formulation
- normal equations
- geometry
- existence/uniqueness of solutions.

orthogonality

- projections
- Gram-Schmidt
- projection interpretation of least squares

linear regression

- polynomial fitting
- overfitting

LS classification

- problem formulation
- decision boundary
- cross-validation