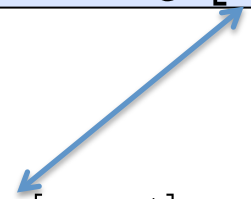
Some Notes
about AR and MA filters

$$AR(1) \quad y[n] = \alpha y[n-1] + x[n]$$



$$y[n-1] = \alpha y[n-2] + x[n-1]$$

$$y[n] = \alpha(\alpha y[n-2] + x[n-1]) + x[n]$$

$$y[n] = \alpha^2 y[n-2] + \alpha x[n-1] + x[n]$$

$$y[n] = \alpha^m y[n-m] + \sum_{k=0}^{m-1} \alpha^k x[n-k],$$

Si: $|\alpha| < 1$ y $m \to \infty$

$$y[n] = \sum_{k=0}^{\infty} \alpha^k x[n-k], \qquad MA(\infty)$$