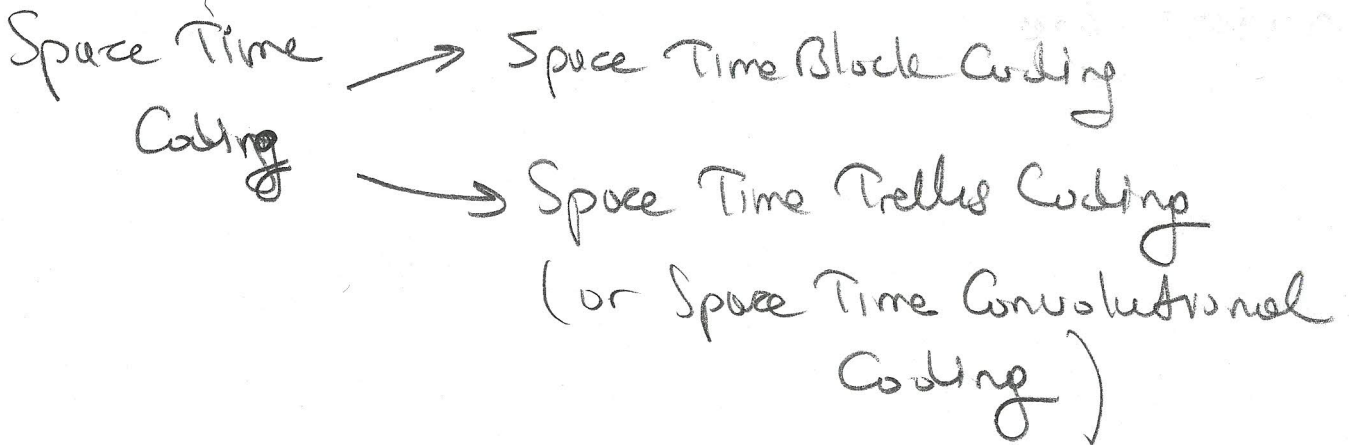
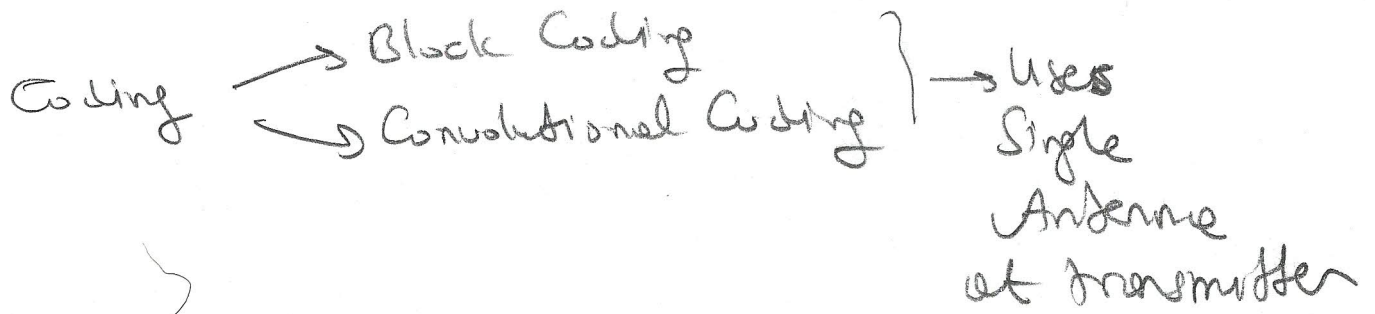


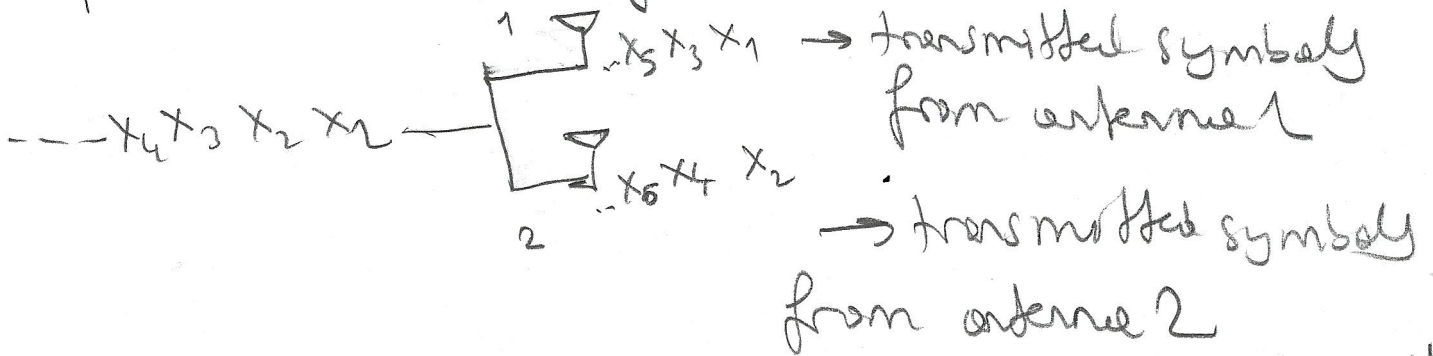
①

Space Time Coding

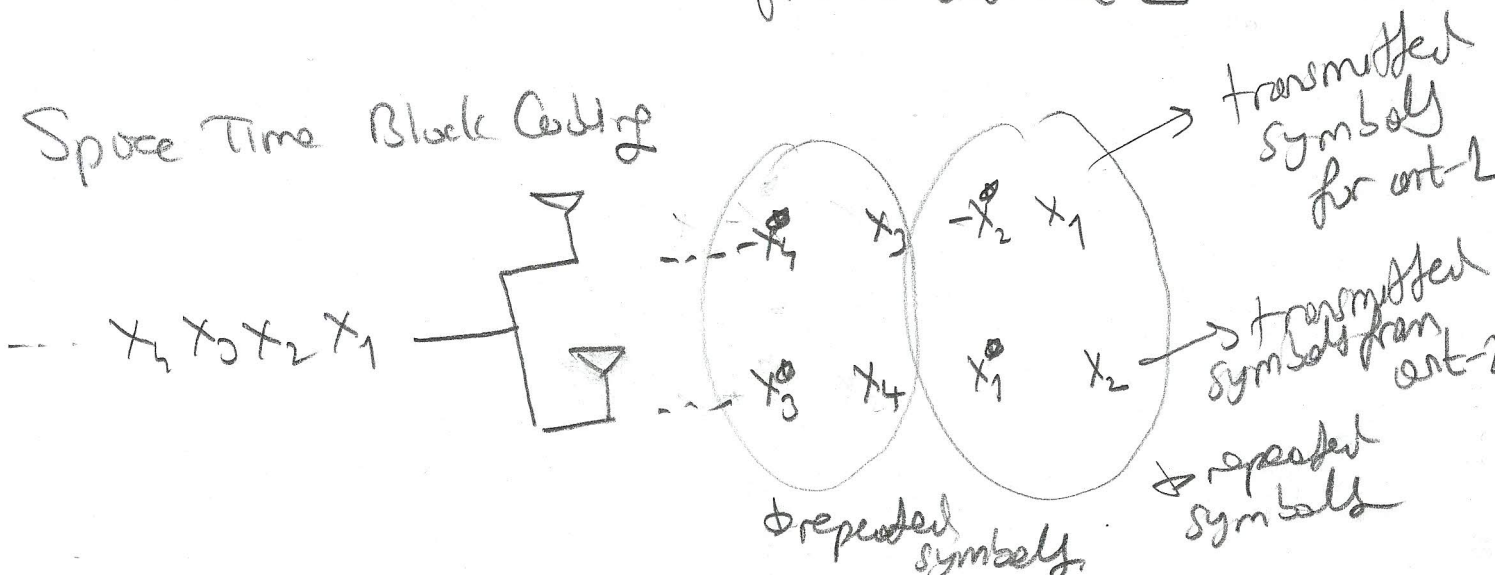


Space Time Block Coding

Space Time Multiplexing

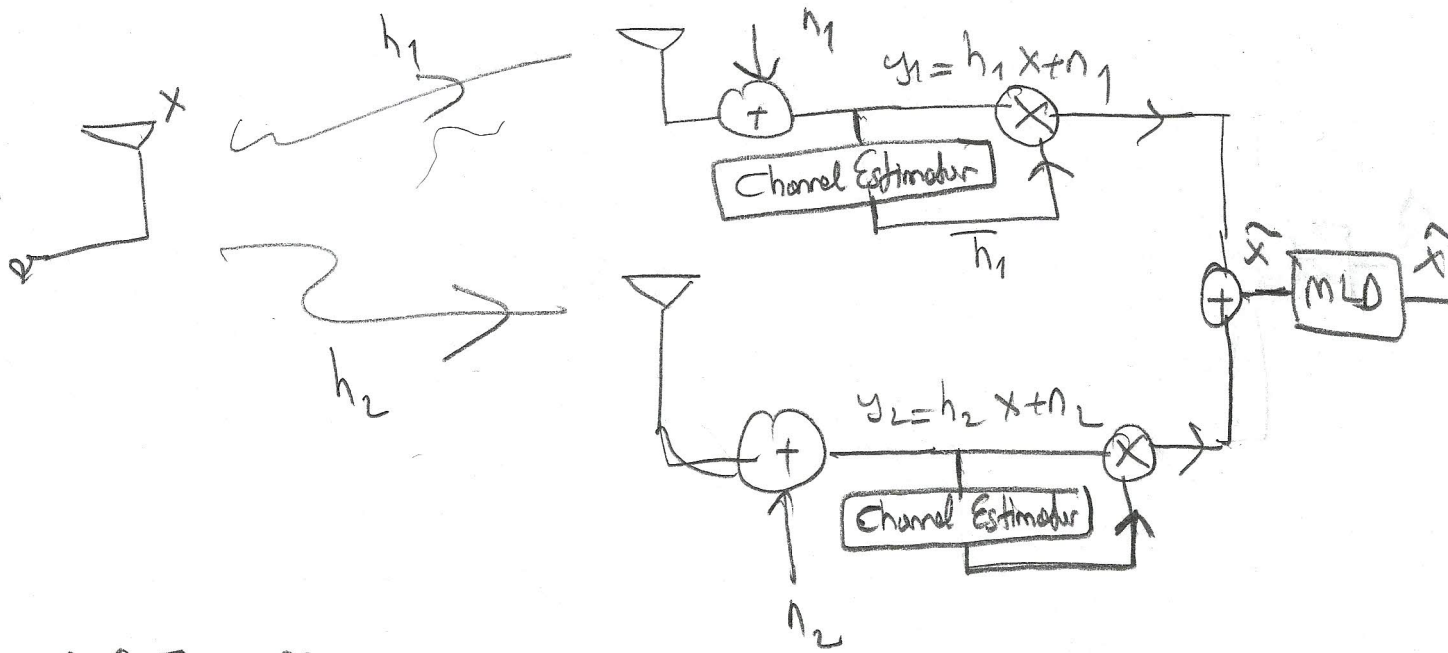


Space Time Block Coding



2

Maximum Ratio Combining



MRC \rightarrow Maximum Likelihood Combiner

MLD \rightarrow Maximum Likelihood Detection

$$h_1 = |h_1| e^{j\theta_1} \quad h_2 = |h_2| e^{j\theta_2}$$

$|h_1|, |h_2| \rightarrow$ are Rayleigh distributed

$\theta_1, \theta_2 \rightarrow$ are uniformly distributed

$$y_1 = h_1 x + n_1 \quad y_2 = h_2 x + n_2$$

$$\hat{x} = \bar{h}_1 y_1 + \bar{h}_2 y_2 \quad \bar{h}_1 = h_1^* = |h_1| e^{-j\theta_1}$$

$$\bar{h}_2 = h_2^* = |h_2| e^{-j\theta_2}$$

$$\hat{x} = |h_1| e^{-j\theta_1} [|h_1| e^{j\theta_1} x + n_1] + |h_2| e^{-j\theta_2} [|h_2| e^{j\theta_2} x + n_2]$$

$$= (|h_1|^2 + |h_2|^2) x + \bar{h}_1 n_1 + \bar{h}_2 n_2$$

