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(4)



word: 000 000 0

1 bit error 000 000 1
 - - 1 0
 - - 1 0 0
 - 1 0 0 0

EX 1

4 JULY 18

✓ If we read the word
000 000 0

1 bit error → 000 000 1

$$\underline{S} = (000\ 000\ 1) \begin{pmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} = (0, 0, 1) = 001$$

$$\underline{S} = (1\ 000\ 000) \begin{pmatrix} \underline{H^+} \end{pmatrix} = (1, 1, 0) = 110$$

2 bit error → ~~000 000 0~~ 000 001 1

$$\underline{S} = (000\ 001\ 1) \begin{pmatrix} \underline{H^+} \end{pmatrix} = (0, 1, 1) = 011$$

3 bit error → 000 011 1

$$\underline{S} = (000\ 011\ 1) \begin{pmatrix} \underline{H^+} \end{pmatrix} = (1, 1, 1) = 111$$

the code can correct 1 bit error detect 2