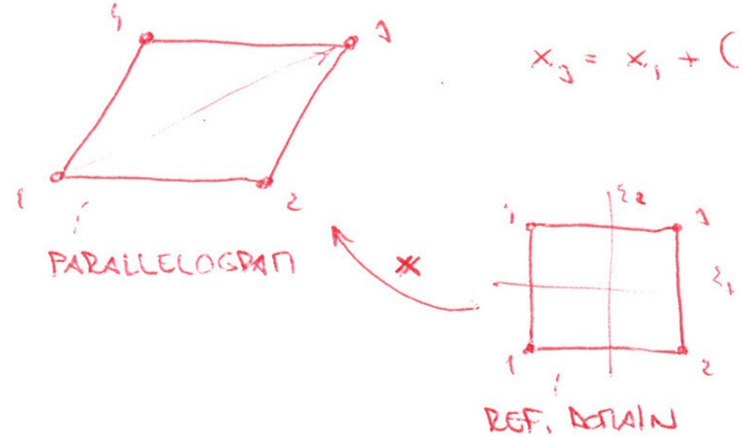

$$x_3 = x_1 + (x_2 - x_1) + (x_4 - x_1) = \underline{\underline{x_2 + x_4 - x_1}}$$

$$\varphi_1 = \frac{1}{4}(1 - \xi_1 - \xi_2 + \xi_1\xi_2)$$

$$\varphi_2 = \frac{1}{4}(1 + \xi_1 - \xi_2 - \xi_1\xi_2)$$

$$\varphi_3 = \frac{1}{4}(1 + \xi_1 + \xi_2 + \xi_1\xi_2)$$

$$\varphi_4 = \frac{1}{4}(1 - \xi_1 + \xi_2 - \xi_1\xi_2)$$

$$\mathbf{X} = x_1\varphi_1 + x_2\varphi_2 + x_3\varphi_3 + x_4\varphi_4 = x_1\varphi_1 + x_2\varphi_2 + (x_2 + x_4 - x_1)\varphi_3 + x_4\varphi_4 =$$

$$= \frac{1}{4}\Big[\cancel{x_1} - x_1\xi_1 - x_1\xi_2 + \cancel{x_1\xi_1\xi_2} + x_2 + x_2\xi_1 - \cancel{x_2\xi_2} - \cancel{x_2\xi_1\xi_2} + x_2 + x_4 + \cancel{x_1}$$

$$+ x_2\xi_1 + \cancel{x_4\xi_1} - x_1\xi_1 + \cancel{x_2\xi_2} + x_4\xi_2 - x_1\xi_2 + \cancel{x_2\xi_1\xi_2} + \cancel{x_4\xi_1\xi_2} - \cancel{x_1\xi_1\xi_2}$$

$$+ x_4 - \cancel{x_4\xi_1} + x_4\xi_2 - \cancel{x_4\xi_1\xi_2}\Big] =$$

$$= \frac{1}{4}\Big[(-x_1\xi_1 + x_2\xi_1)\cdot 2 + (-x_1\xi_2 + x_4\xi_2)\cdot 2 + 2x_2 + 2x_4\Big] =$$

$$= \boxed{\frac{1}{2}\Big[(x_2 - x_1)\xi_1 + (x_4 - x_1)\xi_2 + (x_2 + x_4)\Big]}$$

RESULT: THE REF. MAPPING IS LINEAR, NOT BILINEAR $\Rightarrow$ JACOBIAN CONSTANT.

MOREOVER, IT IS THE SAME AS FOR THE TRIANGLE 1-2-4