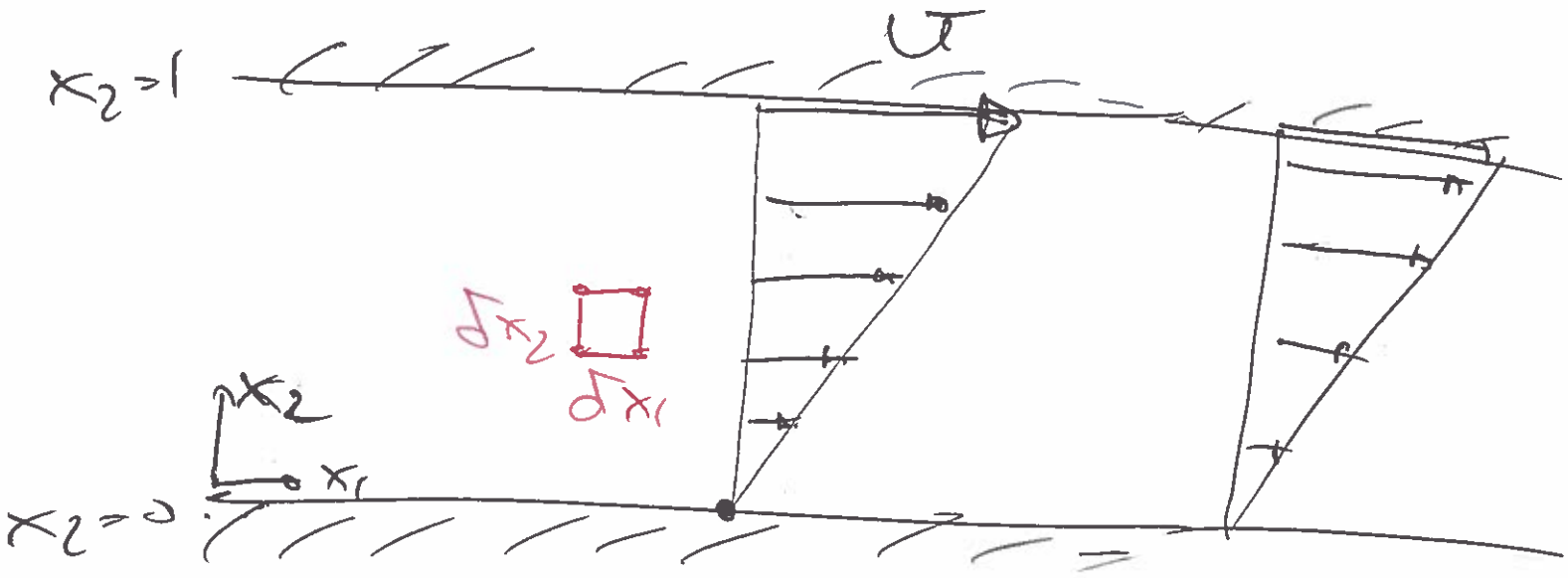
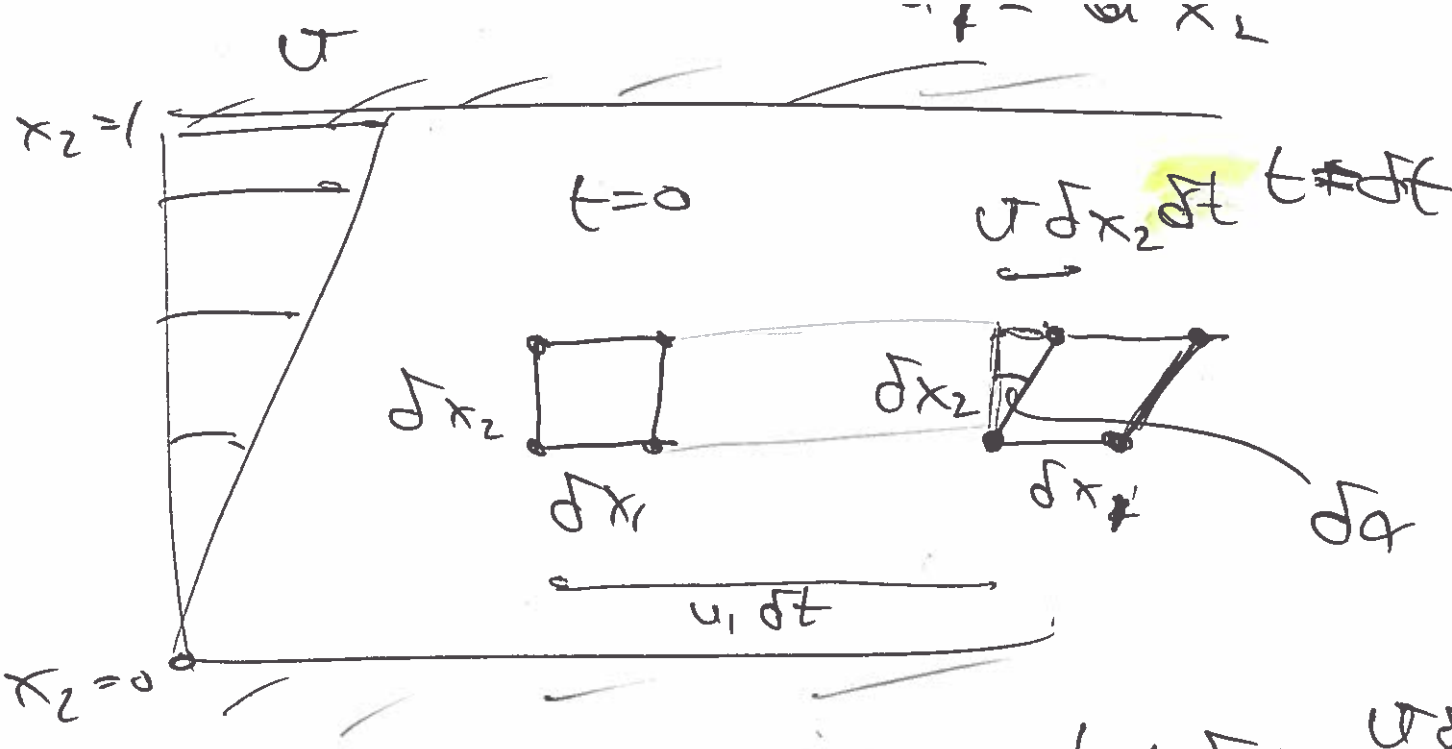


$$\underline{u} = \begin{pmatrix} U x_2 \\ 0 \end{pmatrix} = \begin{pmatrix} u_1(x_1,x_2) \\ u_2(x_1,x_2) \end{pmatrix}$$

$$\varepsilon_{ij} = \frac{1}{2}\left(\frac{\partial u_i}{\partial x_j} + \frac{\partial u_j}{\partial x_i}\right) \qquad \omega_{ij} = \frac{1}{2}\left(\frac{\partial u_i}{\partial x_j} - \frac{\partial u_j}{\partial x_i}\right)$$

$$\frac{\partial u_i}{\partial x_j} = \begin{array}{c} \\ i \\ \\ \end{array} \overset{\begin{array}{cc} j & \end{array}}{\begin{pmatrix} 0 & U \\ 0 & 0 \end{pmatrix}}$$

$$\varepsilon_{ij} = \begin{pmatrix} 0 & \frac{1}{2}U \\ \frac{1}{2}U & 0 \end{pmatrix} \qquad \omega_{ij} = \begin{pmatrix} 0 & \frac{1}{2}U \\ -\frac{1}{2}U & 0 \end{pmatrix}$$



$$\tan \delta\alpha = \frac{U \delta x_2 \delta t}{\delta x_2}$$

$$\delta\alpha = U \delta t$$

$$\varepsilon_{11} = 0 \quad \checkmark$$

$$\varepsilon_{22} = 0 \quad \stackrel{?}{=} \quad \checkmark$$

$$\varepsilon_{12} = \frac{1}{2} U$$

$$\frac{D\alpha}{Dt} = U$$

$$\frac{D\beta}{Dt} = 0$$

Rate of rotation: average rate of rot. of δx_1 δx_2