L93 Differential Inverse Kinematics

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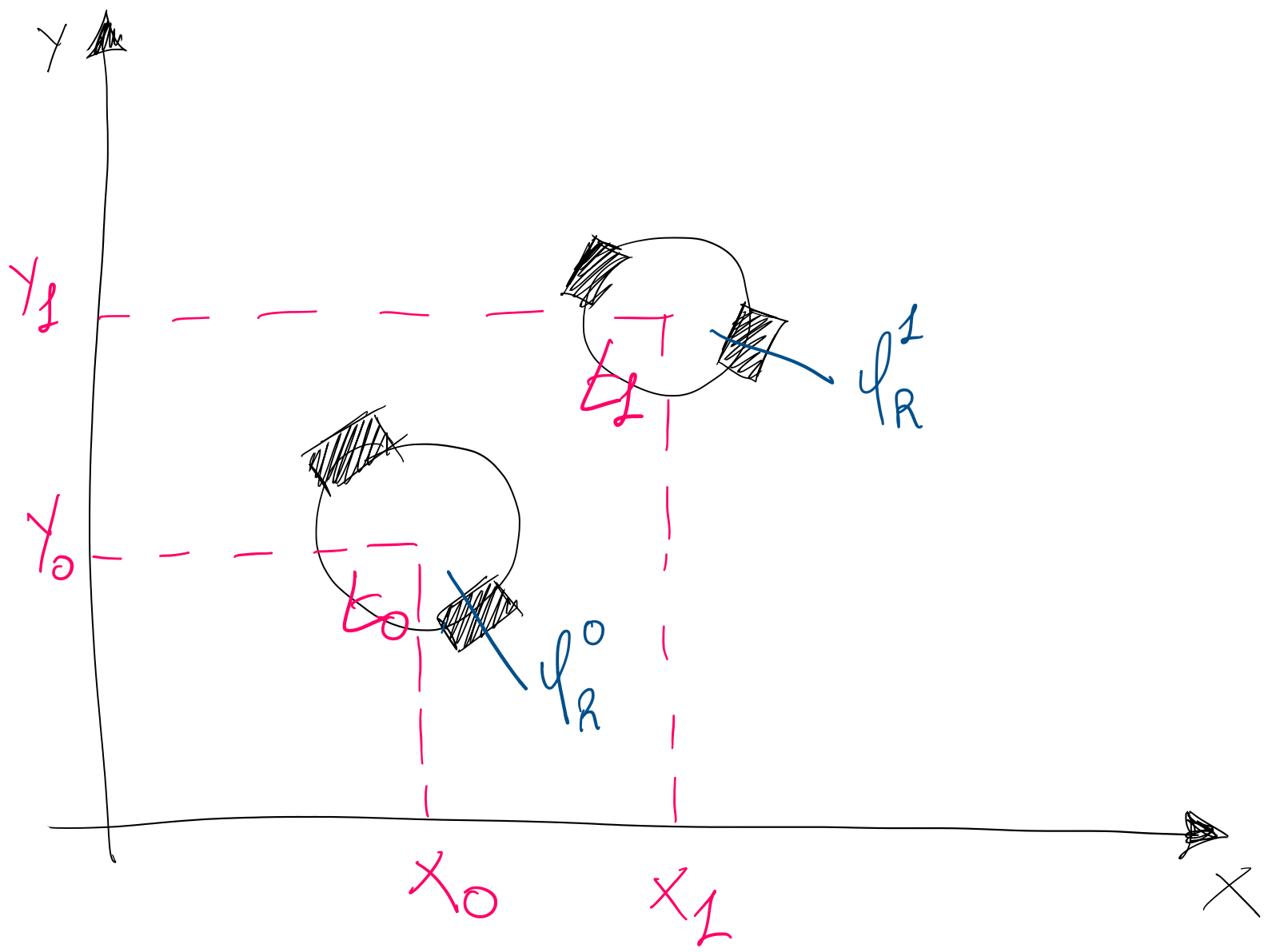
$$\begin{bmatrix} v \\ w \end{bmatrix} = \begin{bmatrix} \frac{w_2}{2} & \frac{w_2}{2} \\ \frac{w_2}{w_S} & -\frac{w_2}{w_S} \end{bmatrix} \begin{bmatrix} \dot{\varphi}_R \\ \dot{\varphi}_L \end{bmatrix}$$

$$v = \frac{s}{t}$$



$$\dot{\varphi}_R = \frac{\varphi_R^1 - \varphi_R^0}{t_1 - t_0} = \frac{\Delta \varphi_R}{\Delta t}$$

$$\dot{\varphi}_L = \frac{\varphi_L^1 - \varphi_L^0}{t_1 - t_0} = \frac{\Delta \varphi_L}{\Delta t}$$

$$\begin{cases} v = \frac{w_2}{2} \frac{\Delta \varphi_R}{\Delta t} + \frac{w_R}{2} \frac{\Delta \varphi_L}{\Delta t} \\ w = \frac{w_2}{w_S} \frac{\Delta \varphi_R}{\Delta t} - \frac{w_R}{w_S} \frac{\Delta \varphi_L}{\Delta t} \end{cases}$$