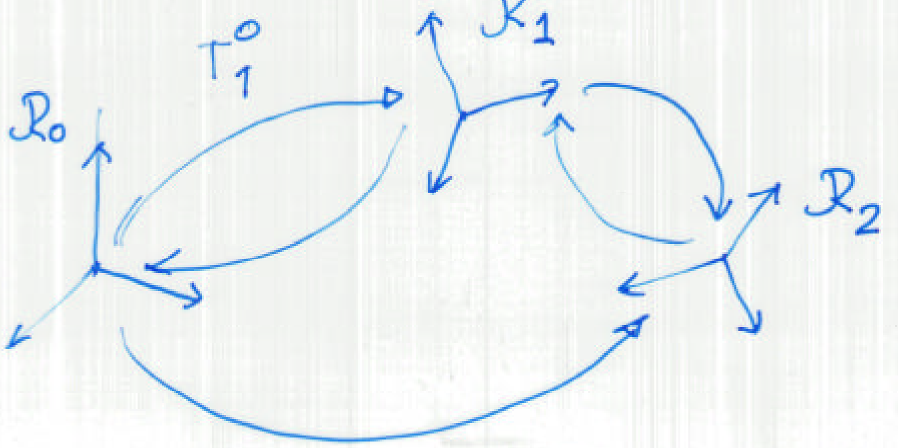


R_1^0

- trasforma $\underline{v}_{AB}^1$ in $\underline{v}_{AB}^0$
- rappresenta $\mathcal{R}_1$ in $\mathcal{R}_0$
- rappresenta il moto (di rotaz) che "prende" $\mathcal{R}_0$ e lo "porta su" $\mathcal{R}_1$

— o —

- COSA FACCIO < ROTAZIONE e/o TRASLAZIONE
- RISPETTO A QUALE RIFERIMENTO LO FACCIO

SE RISPETTO A RIFERIMENTO "FISSO"

O " " " "MOBILE"

POST-MOLTIPLICAZ MOBILE

PRE - ... FISSO

$v^0 = R_1^0 v^1 + t_1^0$

$\tilde{v}^0 = T_1^0 \tilde{v}_1$

$T_1^0 = ?$ $\quad 4 \times 4$

matrice di trasformazione omogenea e rappresenta una roto-traslazione

$$T_1^0 = \left[\begin{array}{c|c} \underset{3\times3}{R_1^0} & \underset{3\times1}{\underline{t}_1^0} \\ \hline \underbrace{0 \quad 0 \quad 0}_{\underline{0}^T} & 1 \end{array}\right]$$

$$\tilde{v}^0 = T_1^0 \tilde{v}_1 = \begin{bmatrix} \boxed{R_1^0} & t_1^0 \\ 0^T & 1 \end{bmatrix} \begin{bmatrix} v_x^1 \\ v_y^1 \\ v_z^1 \\ 1 \end{bmatrix} = \underbrace{R_1^0 \begin{bmatrix} v_x^1 \\ v_y^1 \\ v_z^1 \end{bmatrix} + \begin{bmatrix} t_1^0 \end{bmatrix} \cdot 1}_{\begin{bmatrix} R_1^0 v^1 + t_1^0 \\ - - - - \\ 1 \end{bmatrix}}$$

$$T_1^0 = \left[\begin{array}{c|c} R_1^0 & \underline{t}_1^0 \\ \hline 0^T & 1 \end{array}\right]$$

CASI ELEMENTARI

0) NULLA

$$T_1^0 = \begin{bmatrix} I & 0 \\ 0^T & 1 \end{bmatrix} \equiv I_{4\times4}$$

1) SOLO TRASLAZIONE = TRASL. "PURA"

$$T_1^0 = \begin{bmatrix} I & t_1^0 \\ 0^T & 1 \end{bmatrix}$$

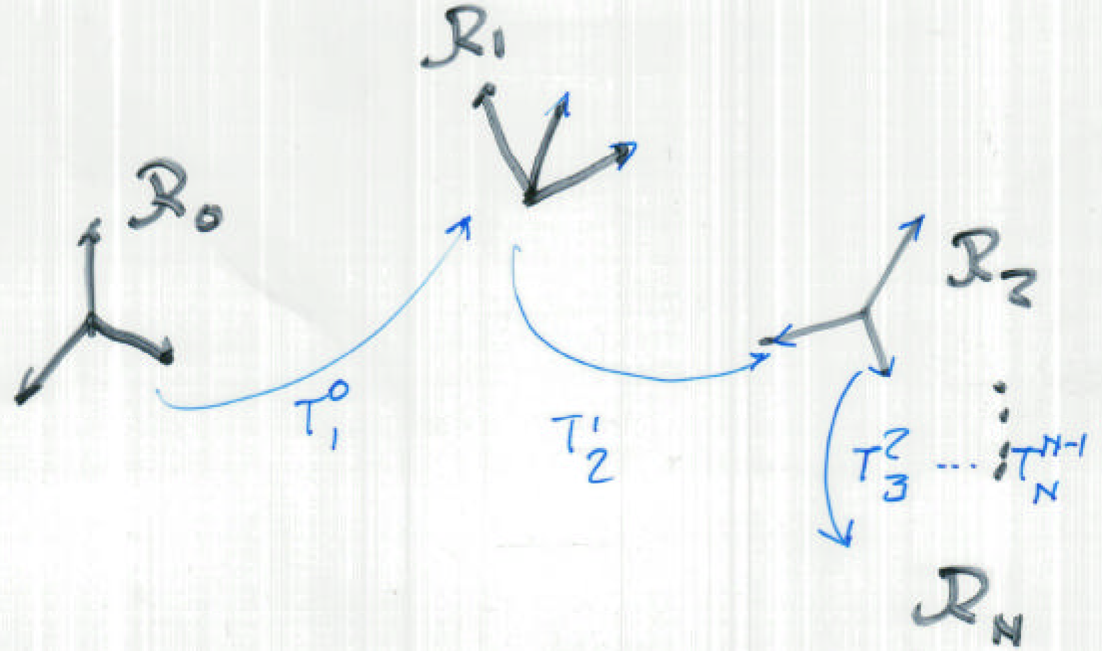
2, 3, 4) ROTAZIONI PURE

INTORNO ASSE X

Y

Z

$$T_1^0 = \begin{bmatrix} R_1^0 & \underline{0} \\ \boxed{\underline{0}^T \quad 1} \end{bmatrix}$$ STRUTTURALE



$$T^0_N = ? = T^0_1\, T^1_2\, T^2_3 \cdots T^{N-2}_{N-1}\, T^{N-1}_N$$

— o —

$$T^0_1 = \begin{bmatrix} R^0_1 & t^0_1 \\ 0^T & 1 \end{bmatrix}$$

$$\left(T^0_1\right)^{-1} \equiv T^1_0 \qquad T^0_1\, T^1_0 = T^0_0 = I$$

$$T^1_0 \left[\begin{array}{c|c} R^1_0 & -R^1_0 t^0_1 \\ \hline 0^T & 1 \end{array}\right] \qquad R^1_0 = \left(R^0_1\right)^{-1} = \left(R^0_1\right)^T$$