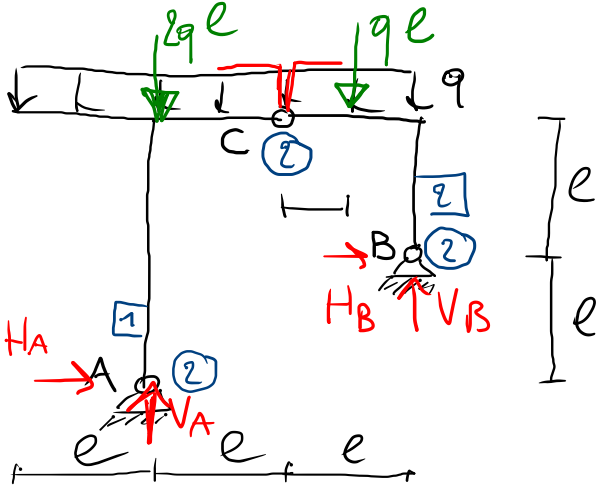
2) ARCO A "TRE CERNIERE GENERALIZZATO" 15/11/22



$g_j = 6, \; \nu = 6$

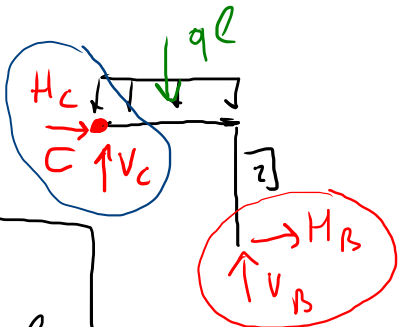
$\begin{cases} 3 \text{ EQ. CARD. STATICA (DI TUTTA LA STRUTTURA)} \\ 1 \text{ EQ. AUSILIARIA (TIENE CONTO DEL VINCOLO INTERNO)} \end{cases}$

$$\begin{cases} \rightarrow: \; H_A + H_B = 0 \\ \uparrow: \; V_A + V_B - 2q\ell - q\ell = 0 \\ +\circlearrowleft_A: \; -H_B \ell + V_B 2\ell - q\ell \tfrac{3}{2}\ell = 0 \\ \hline \boxed{2}\; C^{+}: \; V_B \ell + H_B \ell - q\ell \cdot \tfrac{\ell}{2} = 0 \end{cases} \quad \boxed{1}+\boxed{2}$$

$\boxed{2}\; C^{+}$

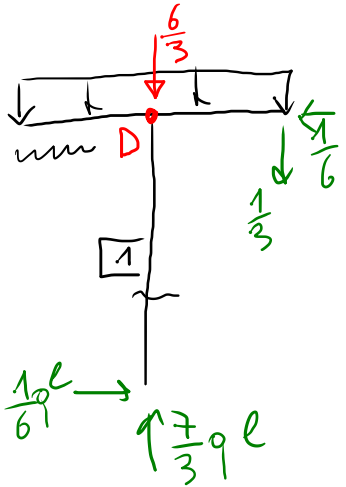
METODO BASATO SULL'EQ. AUSILIARIA: CALCOLARE PRIMA LE 4 INCOGNITE ESTERNE V_A, H_A, V_B, H_B

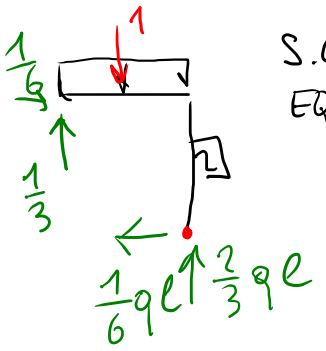
$$\boxed{H_A = \tfrac{1}{6}q\ell, \; H_B = -\tfrac{1}{6}q\ell \qquad V_A = \tfrac{7}{3}q\ell, \; V_B = \tfrac{2}{3}q\ell}$$



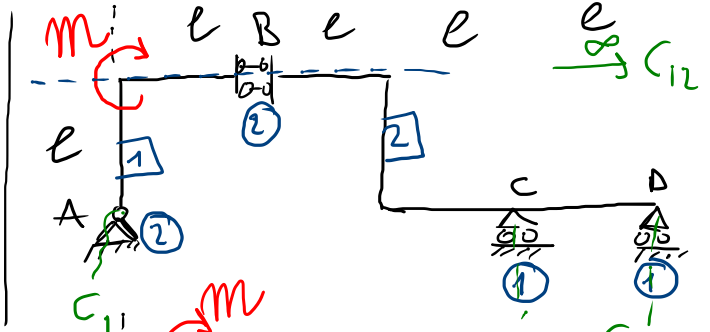
PER CONCLUDERE, H_C, V_C?

$\boxed{2}\begin{cases} \rightarrow: \; H_C + H_B = 0 \; ; \; H_C = -H_B = \tfrac{1}{6}q\ell \\ \uparrow: \; V_C - q\ell + V_B = 0 \; ; \; V_C = q\ell - V_B = \tfrac{1}{3}q\ell \end{cases}$

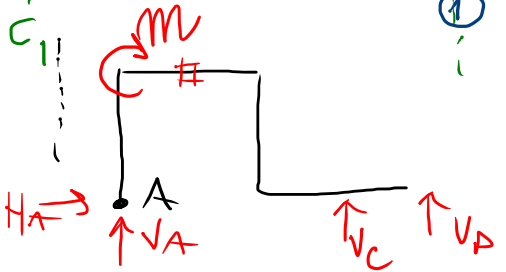


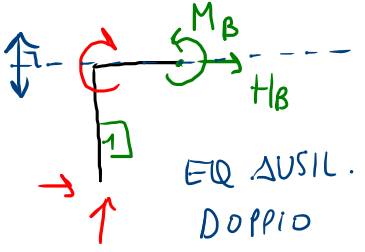


S.C.L.
EQUILIBR.



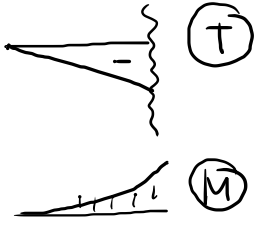
$\delta = 6$
$g = v = 6$

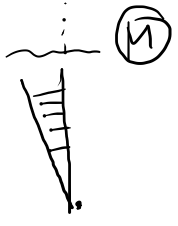




EQ AUSIL. DOPPIO PENDOLO: BILANCIO FORZE ⊥ ASSE

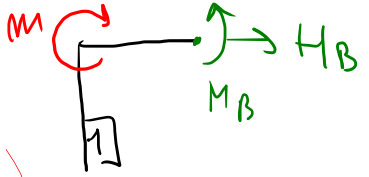
$\curvearrowright_D$: $\frac{1}{6} q \ell \cdot 2\ell - \frac{1}{3} q \ell \cdot \ell \stackrel{?}{=} 0$, (OK)





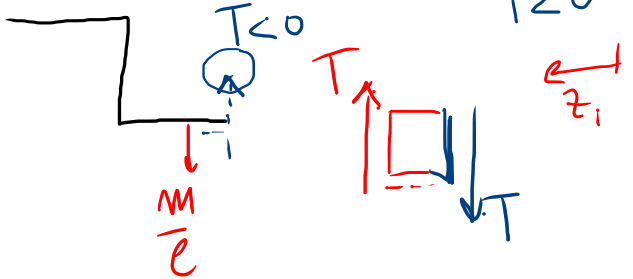
$$\begin{cases} \rightarrow : H_A = 0 \\ \uparrow : V_A + V_C + V_D = 0 \\ \curvearrowright_A : -m + V_C 3\ell + V_D 4\ell = 0 \\ \hline 1 \quad \uparrow + : V_A = 0 \end{cases}$$

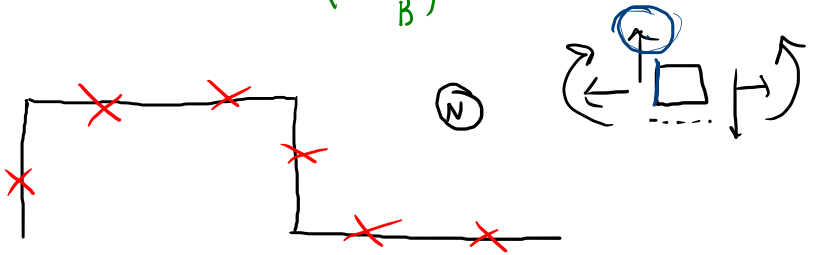
$$V_A = H_A = 0 \; ; \; V_C = -\frac{m}{\ell} \; ; \; V_D = \frac{m}{\ell}$$

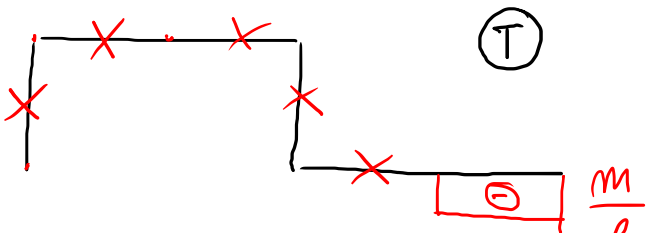
Per il CORPO 1  $\Rightarrow H_B = 0$; $M_B = m$ (+ → , B ↻ +)

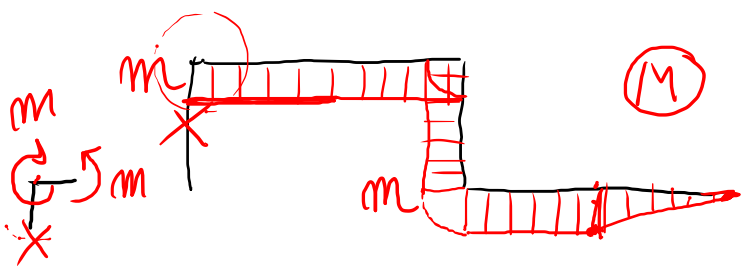
EQ. ✓ soddisfatto

S.C.L. EQUILIBR.

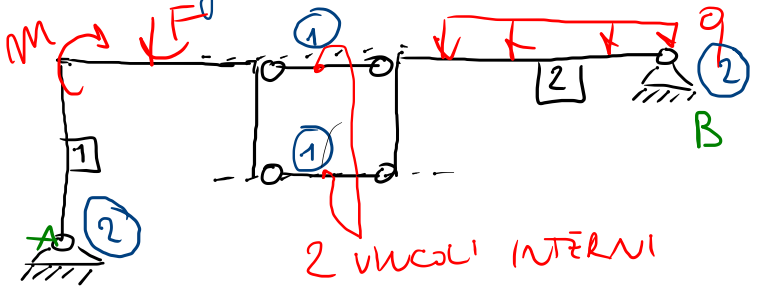








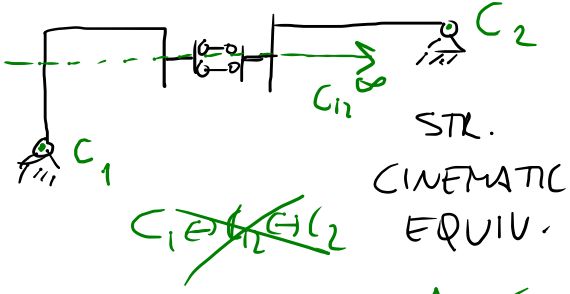
... arco generalizzato con "bielle" interne.



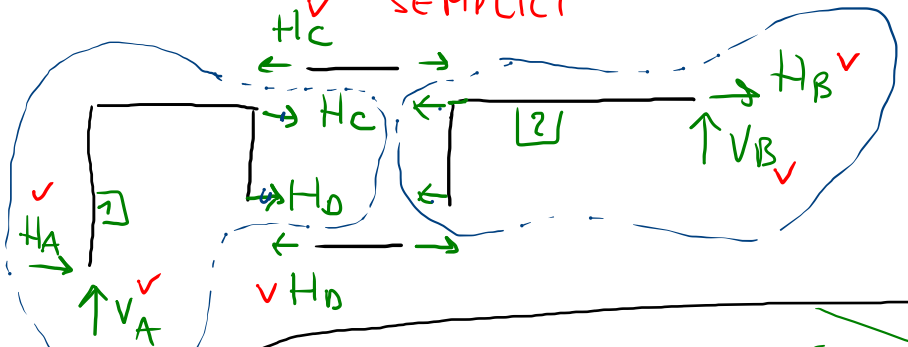
arco gen. a 3 cerniere

$g = 6$; $v = 6$

$\Delta = 6$



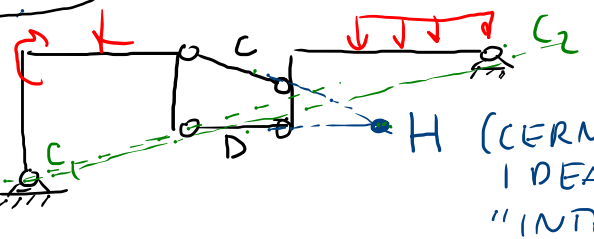
$\Delta = 6$

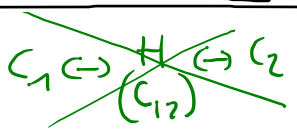


EQUAZ. AUSILIARIA ?

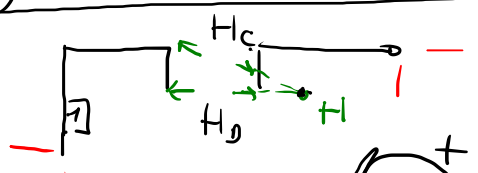
1 $+\uparrow$ ($\perp$ ASSE DELLE BIELLE)

(o 2 $\uparrow+$)





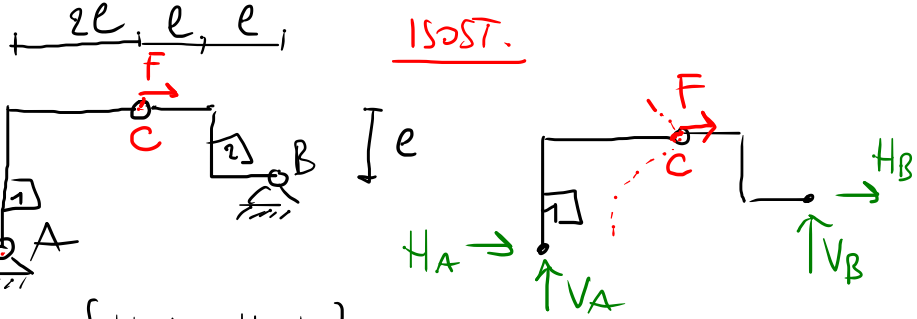
$\Delta = 6$



EQ. AUSIL. ?

1 H^+ (o 2 H^+)

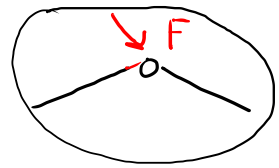
ES: CERNIERA INTERNA CARICATA DA UNA FORZA

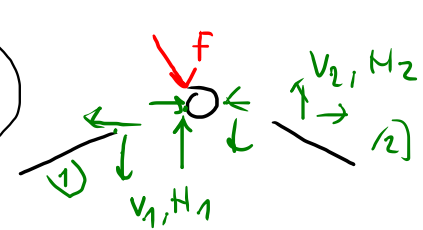


1ª FASE $\{H_A, V_A, H_B, V_B\}$

$$\begin{cases} \rightarrow : H_A + H_B + F = 0 \\ +\uparrow : V_A + V_B = 0 \\ \text{A}) : -F2\ell + V_B 4\ell - H_B \ell = 0 \\ +\ \text{C}\ \boxed{1} : H_A 2\ell - V_A 2\ell = 0 \end{cases}$$

$$\left[V_A = -\frac{F}{3} ; H_A = -\frac{F}{3} ; V_B = \frac{F}{3} ; H_B = -\frac{2}{3}F \right]$$





SENZA (F) : $V_1 = V_2$, $H_1 = H_2$

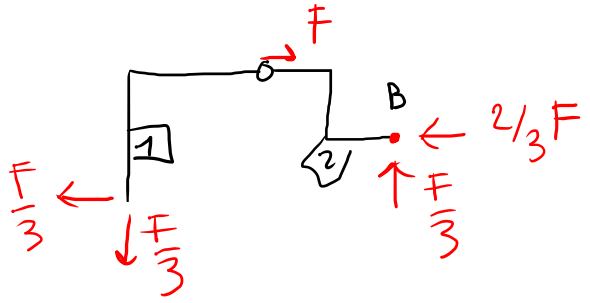
CON (F) : $V_1 \neq V_2$, $H_1 \neq H_2$ ⇒

$g = 6$ + 2 EQ. BILANCIO CERNIERA

$v = 8$

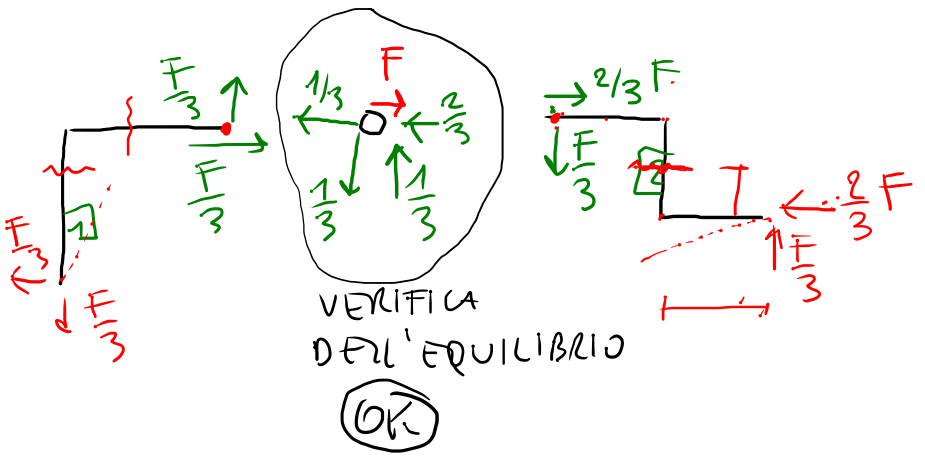
8

2 EQ. AGGIUNTIVE



$$\overset{+}{\circlearrowleft_B}\ ?=0 : +\frac{F}{3}4\ell - \frac{F}{3}\ell - F\ell \overset{?}{=} 0$$ OK

2ª FASE: CALCOLO REAZ. VINCOLARI



VERIFICA DELL'EQUILIBRIO

OK