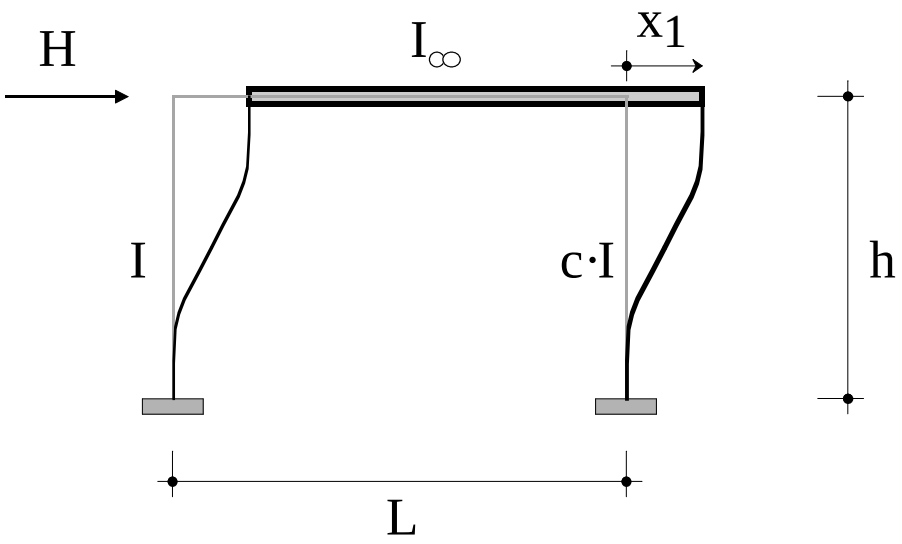
Structure à 1 degré de liberté en translation:



condition d'équilibre: $b_{10} + b_{11} \cdot x_1 = 0$

coefficients:

$b_{10} = -H$

$b_{11} = \Sigma k_i$

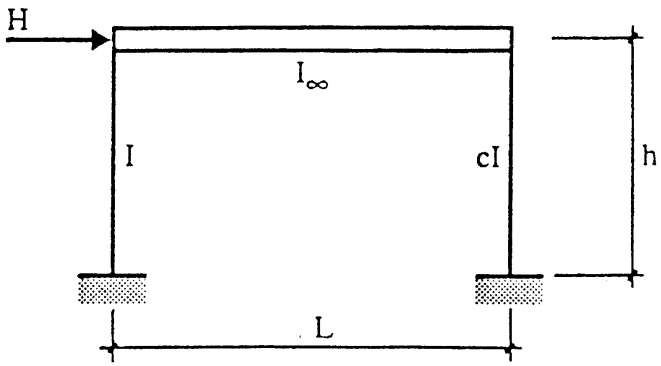
détermination de l'inconnue: $x_1 = \dfrac{H \cdot h^3}{12 \cdot EI} \cdot \dfrac{1}{1+c}$

efforts tranchants en tête de colonne:

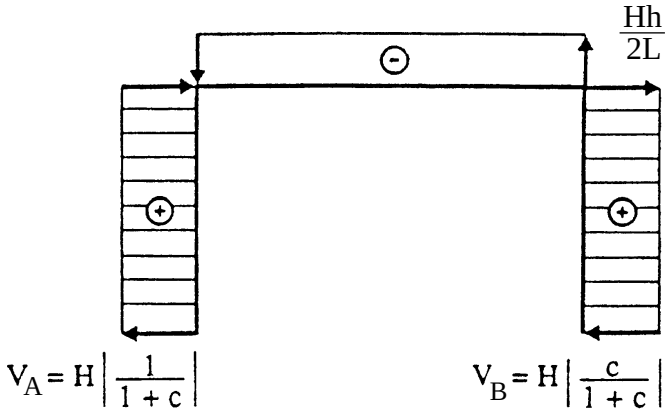
$$V_A = \frac{12 \cdot EI}{h^3} \cdot x_1 = H \cdot \frac{1}{1+c} \qquad V_B = \frac{12 \cdot c \cdot EI}{h^3} \cdot x_1 = H \cdot \frac{c}{1+c}$$

les sollicitations sont à nouveau **proportionnelles** à la **rigidité**.

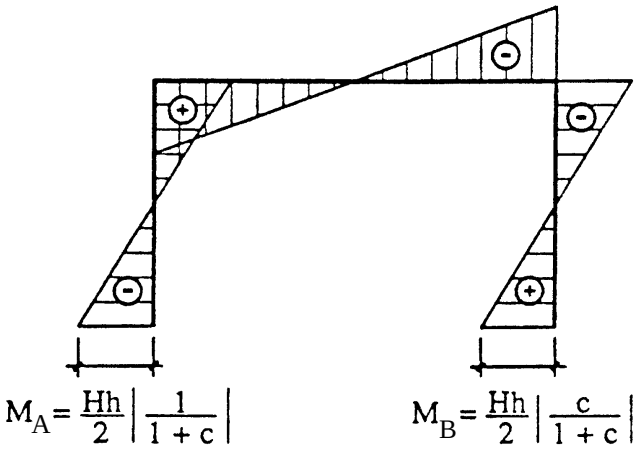
Structure à 1 degré de liberté en translation: **efforts internes**



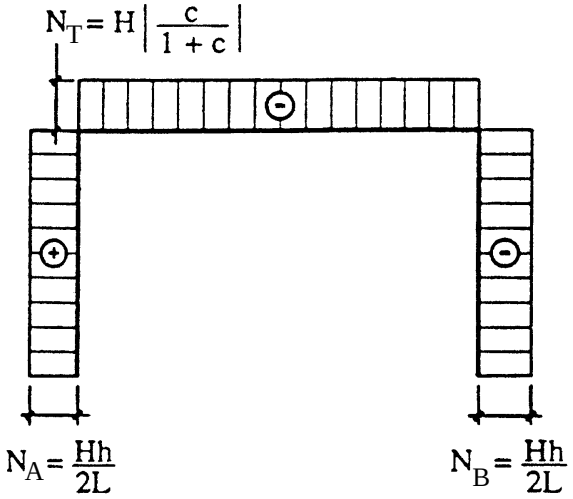
efforts tranchants:



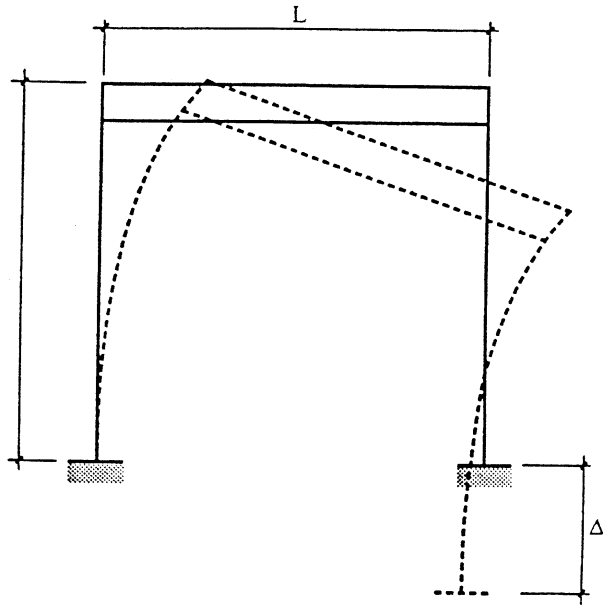
moments de flexion



efforts normaux:



Structure à 1 degré de liberté en translation: **tassement d'appui**

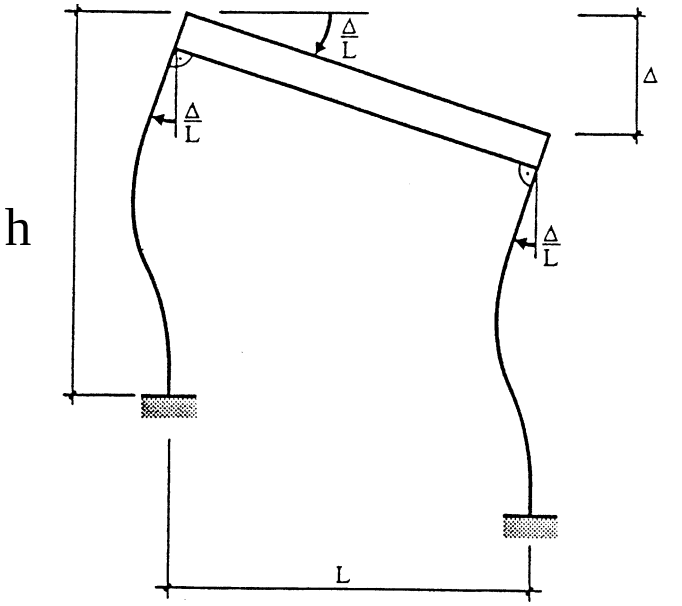


condition d'équilibre:

$$b_{10} + b_{11} \cdot x_1 = 0$$

coefficients:

$$b_{10} = -(1+c) \cdot \frac{6 \cdot EI}{h^2} \cdot \frac{\Delta}{L}$$



$$b_{11} = (1+c) \cdot \frac{12 \cdot EI}{h^3}$$

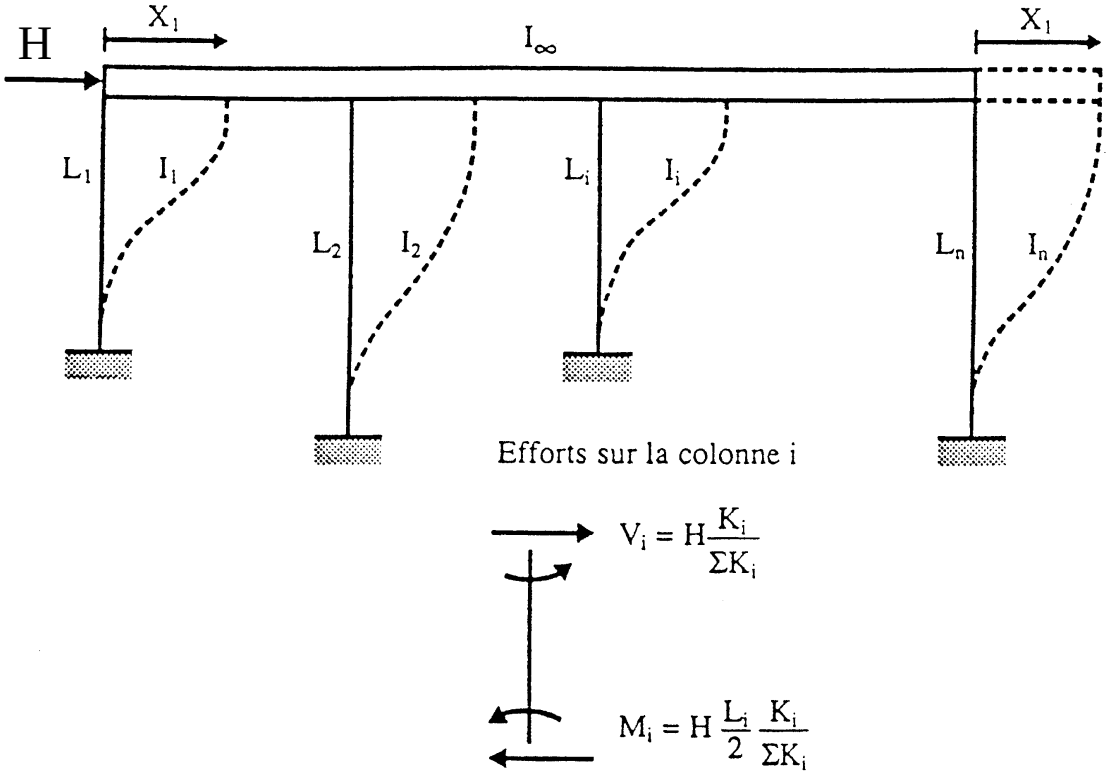
détermination de l'inconnue: $x_1 = \frac{h}{L} \cdot \frac{\Delta}{2}$

efforts tranchants en tête de colonne:

$$V_B = V_0 + V_1 \cdot x_1 = -\frac{6 \cdot c \cdot EI}{h^2} \cdot \frac{\Delta}{L} + \frac{12 \cdot c \cdot EI}{h^3} \cdot \frac{h}{L} \cdot \frac{\Delta}{2} = 0$$

l'effort tranchant est donc **nul** le long des colonnes.

Structure à 1 degré de liberté en translation: **généralisation**



Cadre à étages multiples: