

Load vector $\underline{\Gamma}$ with $\Gamma_i = b(\varphi_i)$

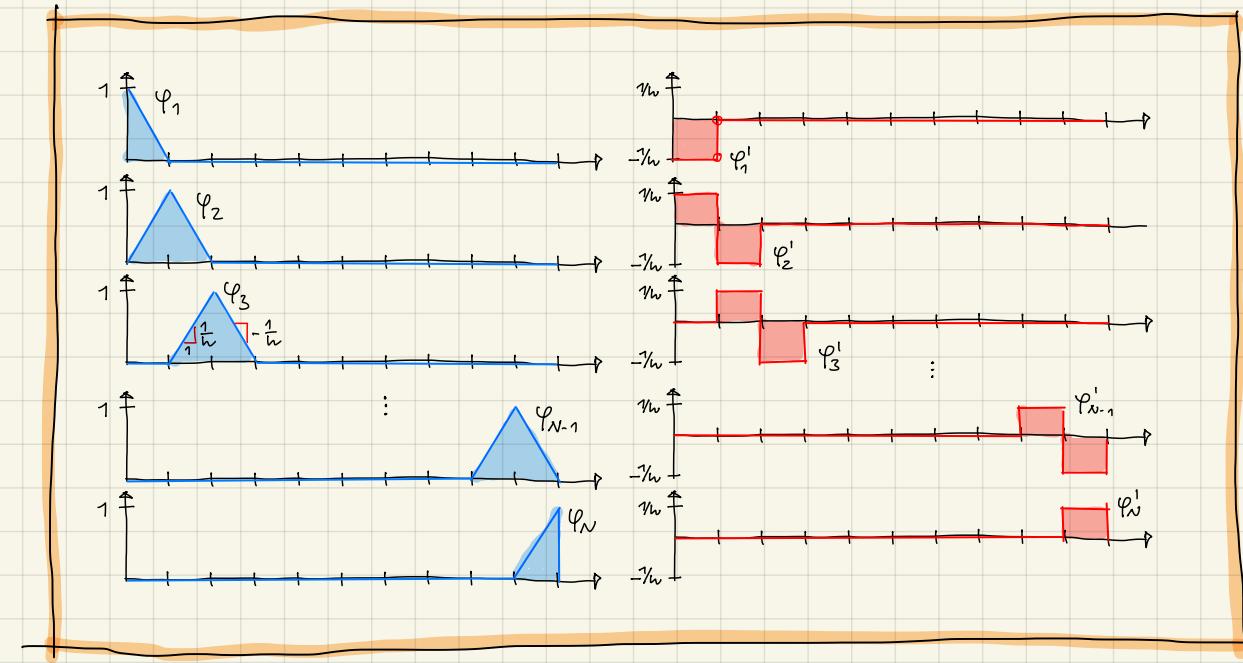
Split contributions to vector $\underline{\Gamma}$

$$\Gamma_i = b(\varphi_i) = h \cdot \underbrace{\int_0^L \varphi_i dx}_{\Gamma_i^n} + \underbrace{F \cdot \varphi_i(0)}_{\Gamma_i^F}$$

Therefore

$$\underline{\Gamma}^n = \frac{n \cdot h}{2} \begin{bmatrix} 1 \\ 2 \\ 2 \\ \vdots \\ 2 \\ 1 \end{bmatrix} \quad \underline{\Gamma}^F = \begin{bmatrix} F \\ 0 \\ 0 \\ \vdots \\ 0 \\ 0 \end{bmatrix}$$

$$\underline{\Gamma} = \underline{\Gamma}^n + \underline{\Gamma}^F$$



$$\int_0^L \varphi_i dx = \int_0^L \varphi_N dx = \frac{h}{2}$$

$$\int_0^L \varphi_i dx = \frac{z \cdot h}{z} = h, \quad i=2, \dots, N-1$$

$$\varphi_i(0) = \begin{cases} 1 & \text{if } i=1 \\ 0 & \text{otherwise} \end{cases}$$