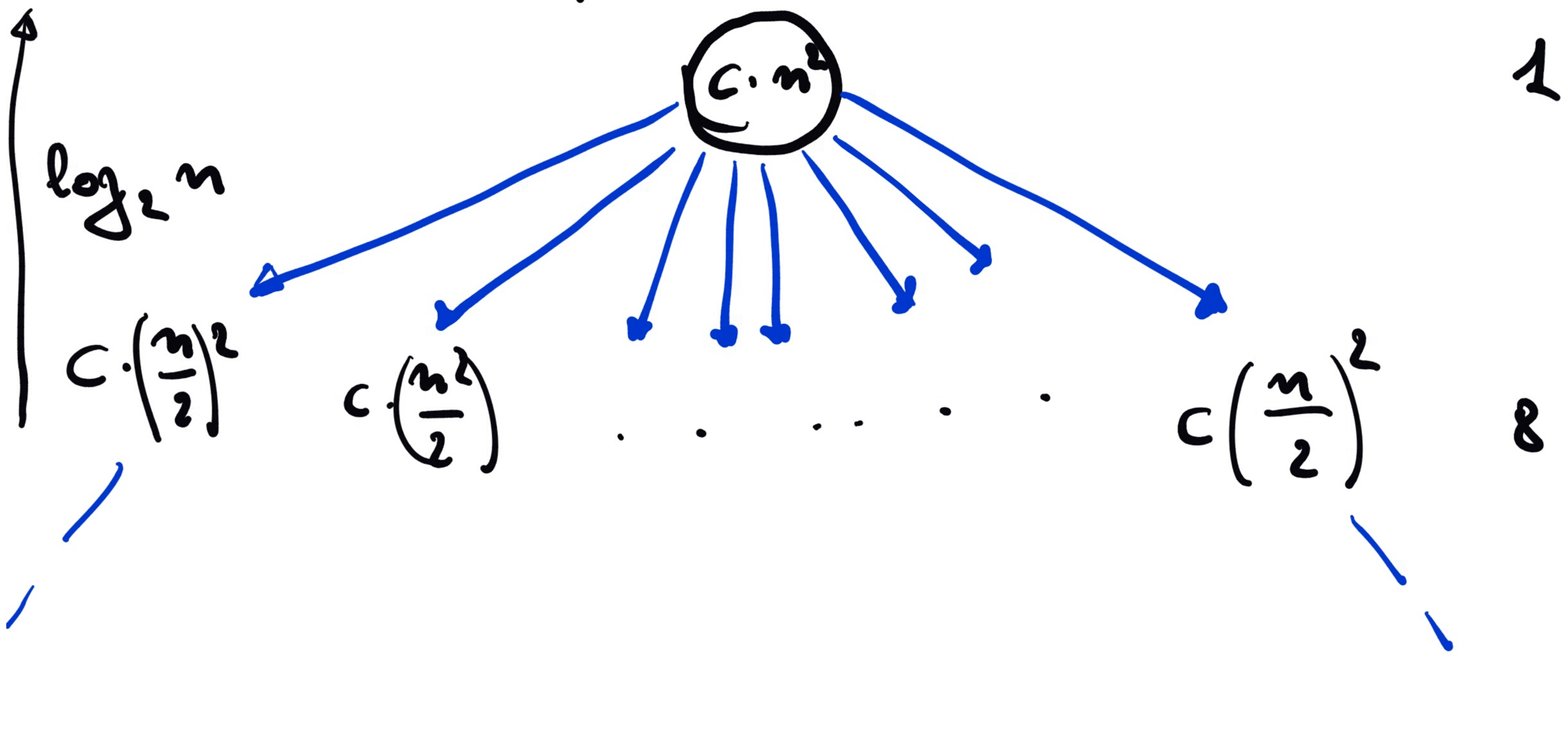
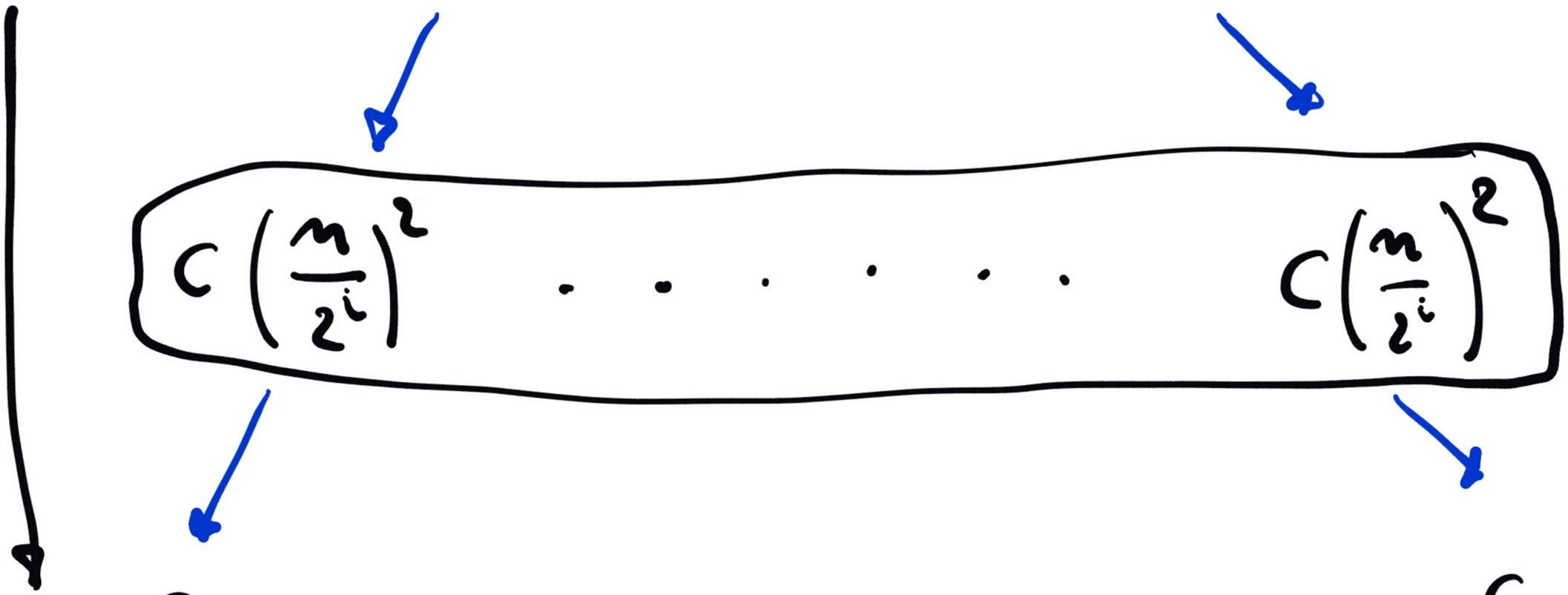
Albero di Ricorsione: un esempio

$$T_4(n) = 8 \cdot T_4\left(\frac{n}{2}\right) + \Theta(n^2) \geq c \cdot n^2$$





L'i-esimo livello prende tempo

$$8^i \cdot C \cdot \left(\frac{n}{2^i}\right)^2 = 2^i \cdot C \cdot n^2$$

$$T_4(n) = \sum_{i=0}^{\log_2 n} 2^i \cdot c \cdot n^2 = c \cdot n^2 \cdot \left(2^{\log_2 n + 1} - 1\right)$$

$$= c \cdot n^2 \cdot (2 \cdot n - 1)$$

$$\leq 2 \cdot c \cdot n^3$$

$$T_4(n) \in O(n^3)$$