



# A tighter upper bound?

We shall prove that  $T(n) = O(n^2)$ .

Assume that  $T(k) \leq ck^2$  for  $k < n$ :

$$\begin{aligned} T(n) &= 4T(n/2) + n \\ &\leq 4c(n/2)^2 + n \\ &= cn^2 + n \\ &= O(n^2) \end{aligned}$$