# **Worst-case recursion tree**

$$T(n) = T(0) + T(n-1) + cn$$



$cn$

$T(0)$   $c(n-1)$

$T(0)$   $c(n-2)$

$T(0)$   $\ldots$

$$\Theta\left(\sum_{k=1}^{n} k\right) = \Theta\left(n^2\right)$$

$\Theta(1)$

*Copyright © 2001-5 by Erik D. Demaine and Charles E. Leiserson*