Exercice 14.4-1

$$T(n) = 1 + \sum_{i=o}^{n-1} T(i) = T(n-1) + 1 + \sum_{i=o}^{n-2} T(i) = T(n-1) + T(n-1) = 2 * T(n-1),\ \forall n > 0\ (1)$$

$$T(0) = 1 (2)$$

Apply product from both sides:

$$(1) \Rightarrow \prod_{i=1}^{n} T(i) = \prod_{i=1}^{n} [2 * T(i-1)] = 2^n \prod_{i=1}^{n} T(i-1), \forall n > 0\ (3)$$

$$(3) \Rightarrow T(n) = 2^n * T(0) = 2^n,\ \forall n > 0$$

$$(2) \Rightarrow T(n) = 2^n, \forall n \geq 0$$