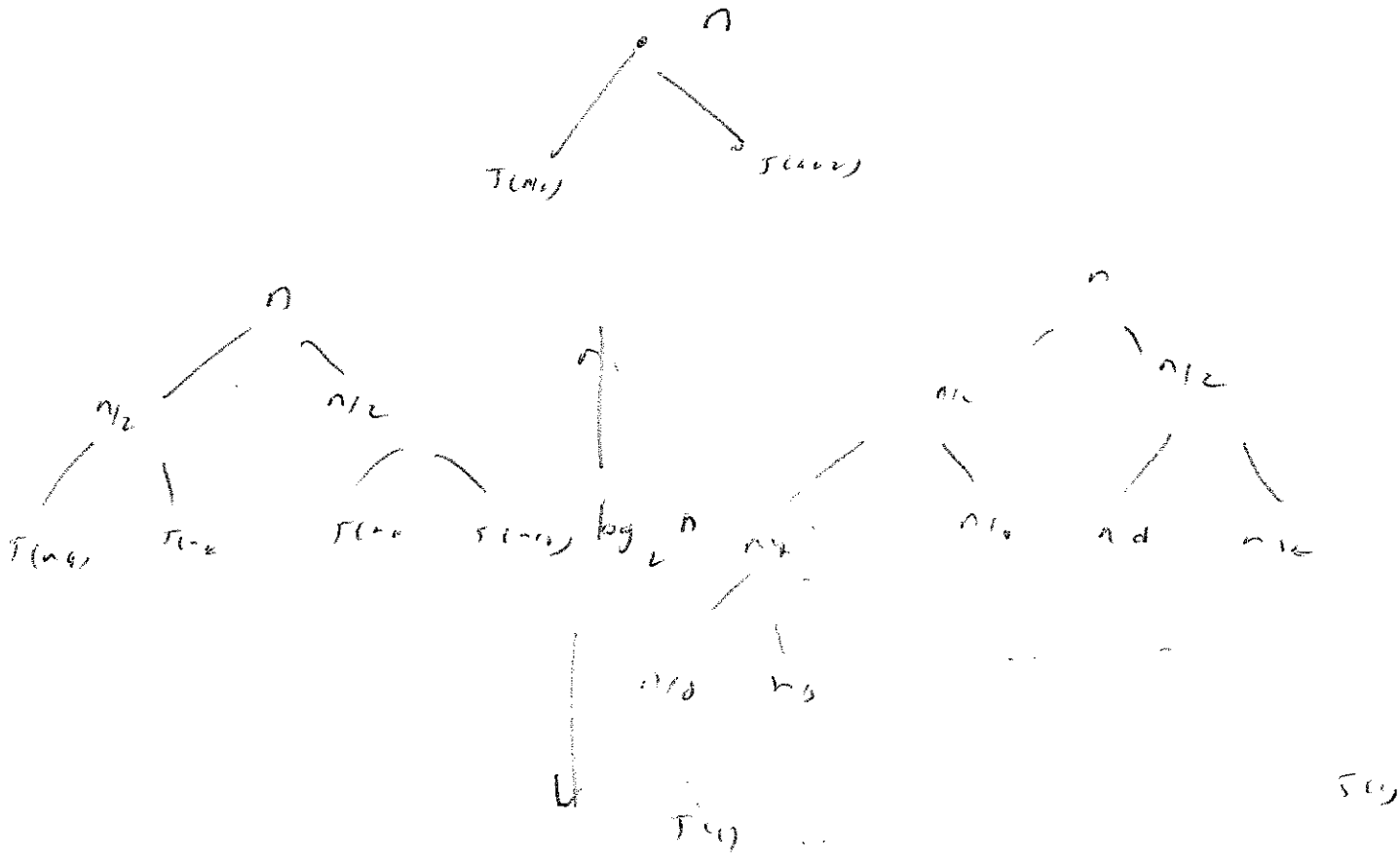
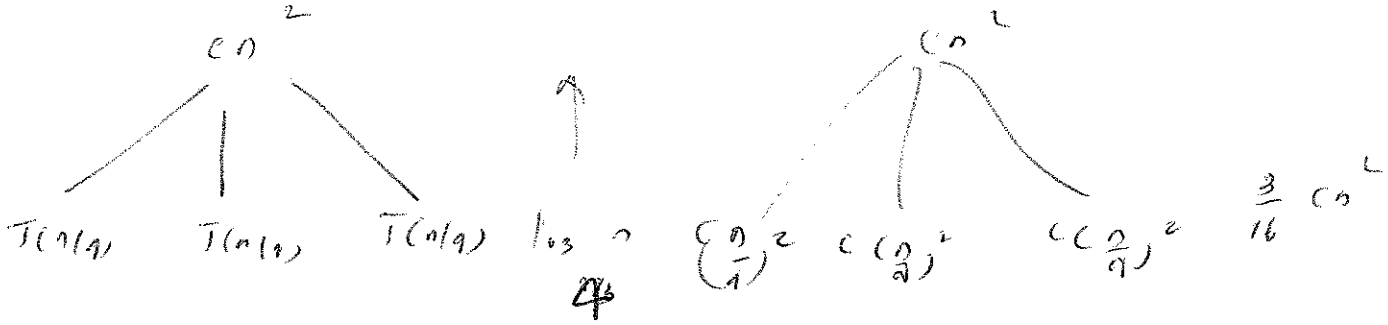
Recursion Tree method

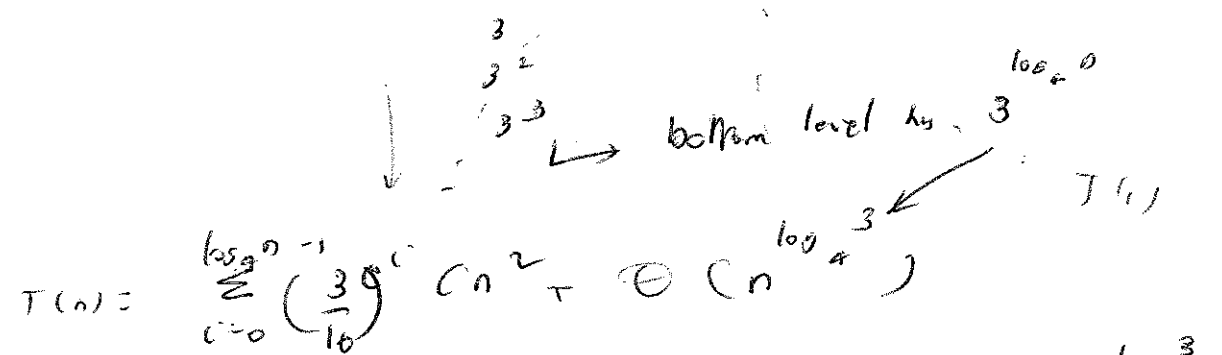
$T(n) = 2T(n/2) + n$



$\underbrace{n + n + \cdots n}_{\log n} = n \cdot T(1) = \Theta(n \log n)$

$T(n) = 3T\left(\frac{n}{4}\right) + cn^2$





$$T(n) = \sum_{i=0}^{\log_4 n - 1} \left(\frac{3}{16}\right)^i cn^2 + \Theta\left(n^{\log_4 3}\right)$$

$$= cn^2 \left[1 + \left(\frac{3}{16}\right) + \cdots + \left(\frac{3}{16}\right)^{\log_4 n - 1}\right] + \Theta\left(n^{\log_4 3}\right)$$

$$< cn^2$$

Subpixel on having different tools and not relying on one.

No tool covers all cases.

Counting, discrete Probability