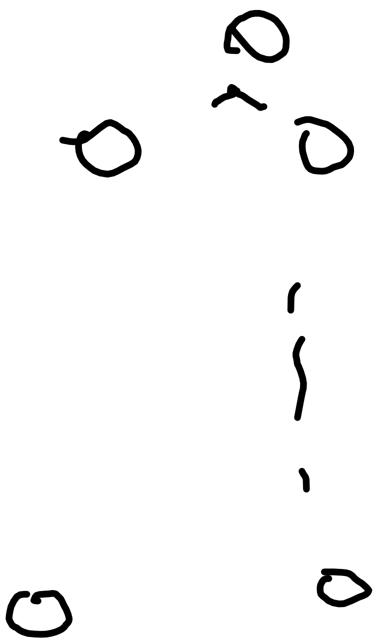
Höhe = log N

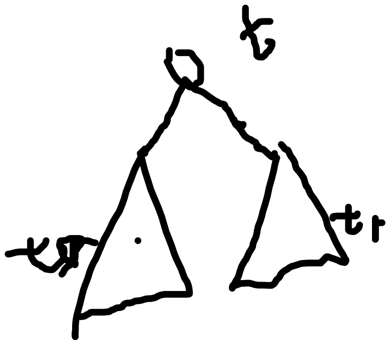


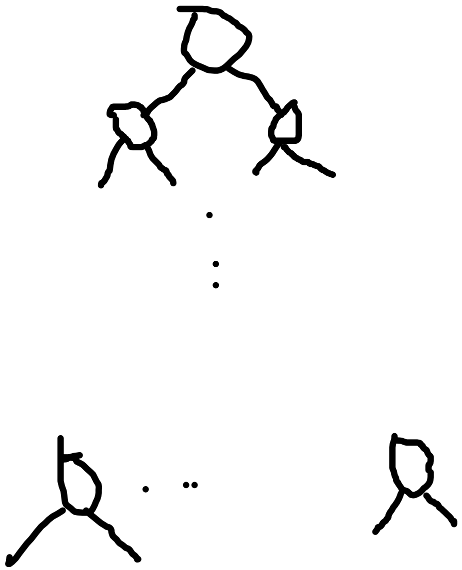
0	0	1
	1	2
	⋮	
	k	2^k

$$2^0+2^1+\dots+2^k = 2^{k+1}-1 > N$$

$$k \approx \log_2(N+1)-1$$

$\{1, 2, 3\}$





k	N
0	1
1	2
⋮	⋮
k	2^k

N=2^(k+1)-1

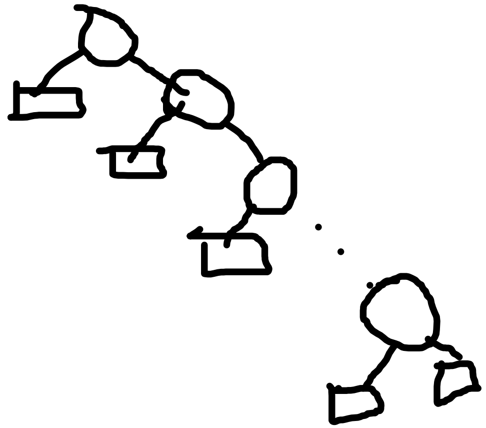
I(t)=1*1 + 2*2 + 3*4 + 4*8 +... + (k+1)*2^k

2*(I(t)) = 1*2 + 2*4 + 3*8 +...+k*2^k + (k+1)*2^(k+1)

- I(t) = 1+2 + 4+ 8+ .. + 2^k -(k+1)*2^(k+1)

= 2^(k+1)-1 - ...

I(t) = (k+1)*2^(k+1)- 2^(k+1)+1= k * (N+1) +1 = log_2(N+1) * (N+1) +1 = O(NlogN)



$$I(t) = 1 + 2 + 3 + ... + N\text{-}1 = N(N\text{-}1)/2 = O(n^2)$$