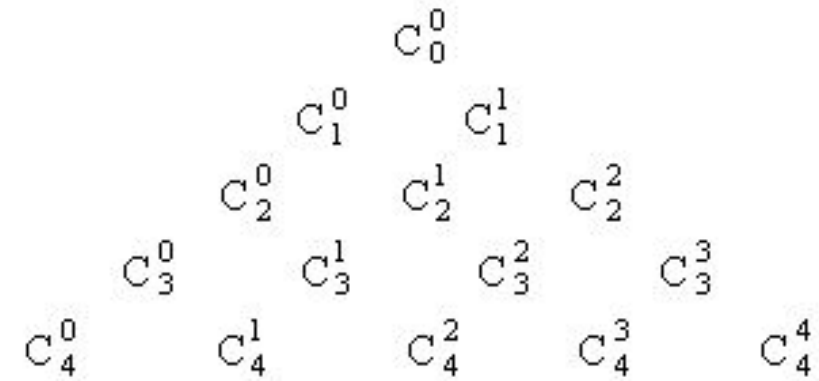
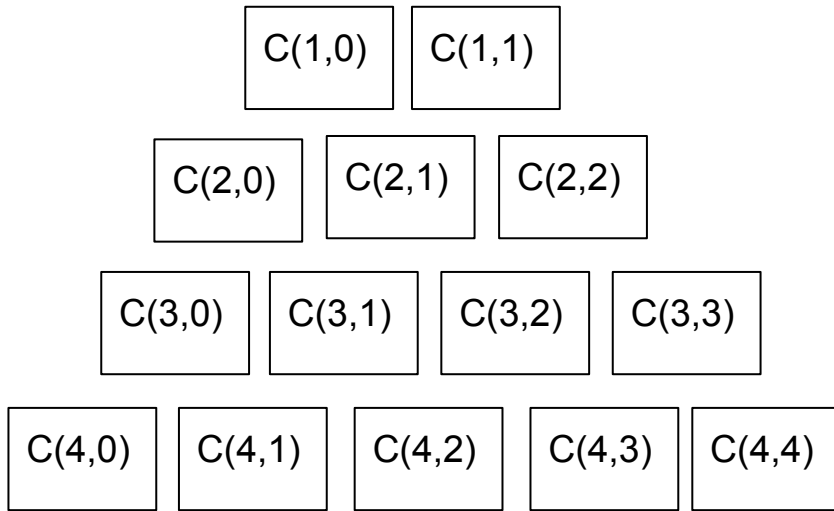


$$C(n,k)=C(n,n-k)$$



$$(a+b+c+\dots+d)^k = P(k_1, k_2, \dots, k_t)^*$$

$(a+b)^4 = (a+b) \cdot (a+b) \cdot (a+b) \cdot (a+b)$
 $a a a b = a^3 b$
 $a b a a = a^3 b$

$$a^3 b^1$$

$$(a+b)^4 = 1 \cdot a^4 + 4 \cdot a^3 b + 6 a^2 b^2 + 4 a b^3 + 1 \cdot b^4$$

$$(a+b)^5 = 1 \cdot a^5 + 5 \cdot a^4 b + 10 a^3 b^2 + 10 a^2 b^3 + 5 a b^4 + b^5$$

$$(a+b+c)^7 = \dots + P(3,2,2) a^3 b^2 c^2 + \dots$$

$$C(4,0) = 4! / (4! \cdot 0!) = 1$$

$$(a+b)^{107} = C(107,4) a^{103} b^4$$

$$P(n) = n!$$

$$P(k_1, k_2, \dots, k_t) = (k_1 + k_2 + \dots + k_t)! / (k_1! \cdot k_2! \cdot \dots \cdot k_t!)$$

$$P(2,3,2,1,1,1) = (2+3+2+1+1+1)! / (2! \cdot 3! \cdot 2! \cdot 1! \cdot 1! \cdot 1!)$$

$$P(k_1, k_2) = (k_1 + k_2)! / (k_1! \cdot k_2!)$$

$$k_1 + k_2 = k$$

$$C(k, k_1) = k! / ((k - k_1)! \cdot k_1!)$$