C(n,k) = C(n-1,k-1) + C(n-1,k)

为什么这个等式成立?

Why does this work? Consider whether the nth element appears in one of the C(n,k) subsets of k elements. If so, we can complete the subset by picking k 1 other items from the other n 1. If not, we must pick all k items from the remaining n 1. There is no overlap between these cases, and all possibilities are included, so the sum counts all k-subsets.

把n个元素分成两组，第一组n-1个,第二组1个，从中取出k个元素，方法有 C(n,k)种 ,取法有两种：

(1)从第一组中取出k个，方法有C(n-1,k)种；

(2) 从第一组中取出k-1个,从第二组中取出1个，方法有C(n-1,k-1)种

所以,C(n,k)=C(n-1,k)+C(n-1,k-1)。