

Picking k items out of n

Algorithm for generating all the possibilities:

- For $i=1$ up to k , DO
 - Pick an item from S to include in set A
 - Delete that item from the set S

The number of ways of performing this algorithm is $n(n-1)(n-2)\dots(n-k+1)=n!/(n-k)!$

But each set A can be generated in multiple ways - and we have overcounted!