【Discrete Math】Day2(2)

【Ch2】Let us count（4）

2.5 Permuitations

If we have an ordered list of *n* objects, and we rearrange them so that they are in another order, this is called permuting them, and the new order is also called a permutation of the objects.

We also call the rearrangement that does not change anything, a permutation.

So the question is to determine the number of ways n objects can be ordered(i.e. the number of permutations of n objects).

The solution found by the people at the party workds in general: we can put any of the n people on the first place; no matter whom we choose, we have n=1 chocies for the second.

So the number of ways to fill the first two positions is $n \times (n-1).$ No matter how we have filled the first and second positions.

From this model, we can see that

Theorem 2.4 *The number of permutations of n objects in n!.*
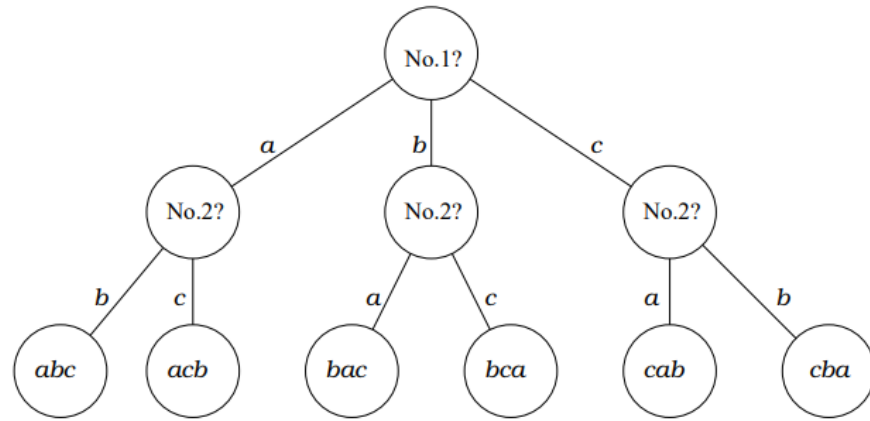
The decision tree for the problem will look like this

Figure 2: A decision tree for selecting a subset of $\{a,b,c\}$.