

Answer to Exercise 5.2-2 on page 122 of the text:

The set of all of the permutations of the n candidates that will lead to exactly 2 hires is:

$$\{ p *^j n *^{n-j-2} : 1 \leq p \leq n-1, 0 \leq j \leq p-1 \}$$

The number of such permutations is

$$\sum_{p=1}^{n-1} \sum_{j=0}^{p-1} P_j^{p-1} \cdot P_{n-j-2}^{n-j-2} = \sum_{p=1}^{n-1} \sum_{j=0}^{p-1} \frac{(p-1)!}{(p-1-j)!} \cdot \frac{(n-j-2)!}{0!} = \sum_{p=1}^{n-1} \sum_{j=0}^{p-1} \frac{(p-1)!(n-j-2)!}{(p-1-j)!}$$