$$\overbrace{{}_1\mathtt{l}\cdot\cdot{}_{m+n}\mathtt{l}}\,\underbrace{\mathtt{]x']}} = \sum_{\begin{cases}\sigma_1<\cdot\cdot<\sigma_m\\ \sigma_{m+1}<\cdot\cdot<\sigma_{m+n}\end{cases}} (-1)^{\sigma}\,\underbrace{\overbrace{{}_{\sigma_1}\mathtt{l}\cdot\cdot{}_{\sigma_m}\mathtt{l}}\mathtt{]}}\,\underbrace{\overbrace{{}_{\sigma_{m+1}}\mathtt{l}\cdot\cdot{}_{\sigma_{m+n}}\mathtt{l}}\mathtt{']}}$$

$$= \frac{1}{m!n!}\sum_{\pi}(-1)^{\pi}\,\underbrace{\overbrace{{}_{\pi_1}\mathtt{l}\cdot\cdot{}_{\pi_m}\mathtt{l}}\mathtt{]}}\,\underbrace{\overbrace{{}_{\pi_{m+1}}\mathtt{l}\cdot\cdot{}_{\pi_{m+n}}\mathtt{l}}\mathtt{']}}$$