$$\Rightarrow p(y_i = k, \{n_c^i\}_{c=1}^C | \lambda^i, \boldsymbol{f_i}) = \sigma\left(f_i^k\right) \prod_{c=1}^{C} \mathrm{Po}(n_c^i | \lambda^i) \sigma\left(-f_i^c\right)^{n_c^i}$$