XI. SAMPLING $beta$

According to [**?**], β is distributed as follows:

$$\beta = (\beta_1, ..., \beta_K, \beta_u) \sim Dir(m_{.1}, ..., m_{.K}, \gamma) \tag{79}$$

Where $m_{.k}$ represent the number of tables serving the dish k in all restaurants, in the chinese restaurant franchise. The sampling of the table configuration $\boldsymbol{m}$ can be done using the unsigned Stirling numbers of the first kind $s(n, m)$ [**?**]:

$$\mathbf{p}(m_{ik} = m \mid Z, \boldsymbol{m}^{-jk}, \beta) = \frac{\Gamma(\alpha_0 \beta_k)}{\Gamma(\alpha_0 \beta_k + N_{jk})} s(n_{jk}, m)(\alpha_0 \beta_k)^m \tag{80}$$