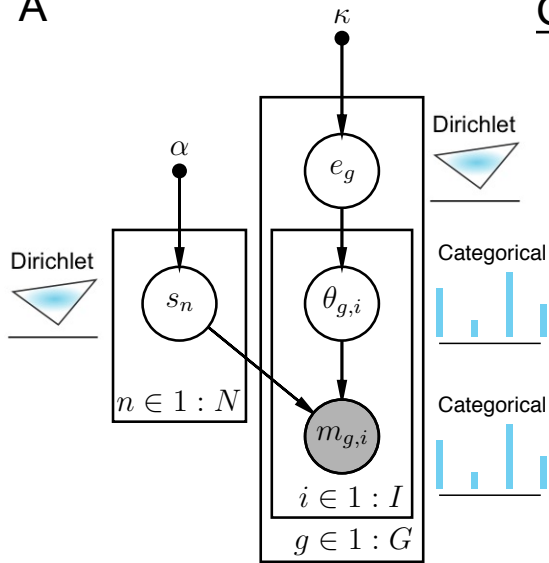


A

Generative mutational model

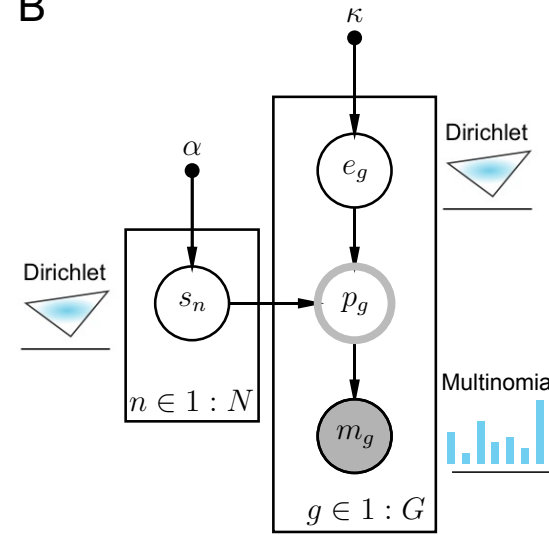
$$e_g \sim \text{Dirichlet}(\kappa)$$

$$s_n \sim \text{Dirichlet}(\alpha)$$

$$\theta_{g,i} \sim \text{Categorical}(e_g)$$

$$m_{g,i} \sim \text{Categorical}(s_n | \theta_{g,i} = n)$$

B

NMF model

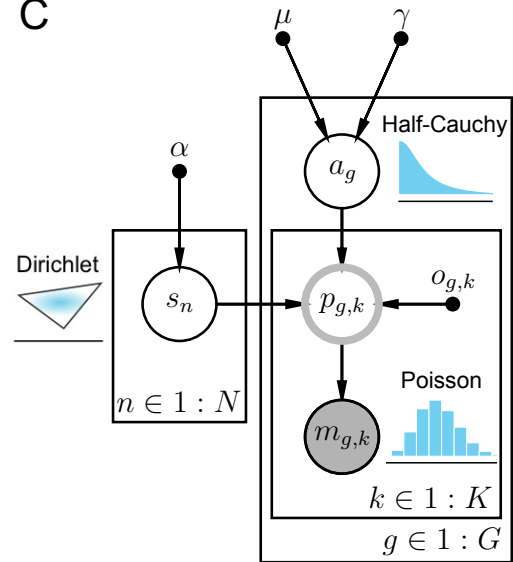
$$e_g \sim \text{Dirichlet}(\kappa)$$

$$s_n \sim \text{Dirichlet}(\alpha)$$

$$p_{g,k} = \sum_n e_{g,n} s_{n,k}$$

$$m_g \sim \text{Multinomial}(p_g | E, S)$$

C

EMu model

$$a_g \sim \text{Half-Cauchy}(\mu, \gamma)$$

$$s_n \sim \text{Dirichlet}(\alpha)$$

$$p_{g,k} = o_{g,k} \times \sum_n a_{g,n} s_{n,k}$$

$$m_{g,k} \sim \text{Poisson}(p_{g,k} | O, A, S)$$

