$$Pr(\{y_g, \gamma_g, t_{gk}, \beta_{gk}, l_d, f_g, z_n, i_{ng}\}|\{w_{nd}\}) = \prod_{g}^{G} p(y_g|\rho)p(\gamma_g|\sigma)p(f_g|\alpha)\cdot$$

$$[\prod_{k}^{K} p(t_{gk}|\gamma_g)p(\beta_{gk}|t_{gk}, y_g)]p(\kappa|\alpha)\prod_{d}^{D} p(l_d|\kappa)p(\pi|\alpha)\prod_{n}^{N} p(z_n|\pi)$$

$$\prod_{n}^{N}\prod_{g}^{G} p(i_{ng}|\beta, z_n)\prod_{n}^{N}\prod_{d}^{D} p(w_{nd}|i_{ng}, f, l_d)]$$

From Kim et al. (NIPS, 2015)