$$X_{ij\ell}|\lambda_{ij}, Y_{\lambda_{ij}\ell}, z_{ij\ell} \sim \begin{cases} \delta(Y_{\lambda_{ij}\ell}) & \text{if } z_{ij\ell} = 0, \\ F_\ell(Y_{\lambda_{ij}\ell}) & \text{if } z_{ij\ell} = 1 \text{ and field } \ell \text{ is string-valued,} \\ G_\ell & \text{if } z_{ij\ell} = 1 \text{ and field } \ell \text{ is categorical} \end{cases}$$

$$Y_{j'\ell} \sim G_\ell$$

$$z_{ij\ell}|\beta_{i\ell} \sim \text{Bernoulli}(\beta_{i\ell})$$

$$\beta_{i\ell} \sim \text{Beta}(a, b)$$

$$\boldsymbol{\lambda_{ij} \sim \gamma(\vartheta, \sigma)}$$