Jeremy Silver Mar. 9, 2016

## 1 Latent Factor Model (Single Graph)

$$\begin{aligned} \log \operatorname{odds}(y_{ij}) &= \theta_{ij} \\ \theta_{ij} &= \mu + u_i^T D u_j + s_i + s_j + \epsilon_{ij} \\ \mu &\sim \mathcal{N}(0, \, \sigma^2) \\ d_{ii} &\sim \mathcal{N}(0, \, \sigma_D^2) \\ U_i &\sim \operatorname{MVN}(0, \, \sigma_U^2 I) \\ s_i &\sim \mathcal{N}(0, \, \sigma_s^2) \\ \epsilon_{ij} &\sim \mathcal{N}(0, \, \sigma_\epsilon^2) \end{aligned}$$