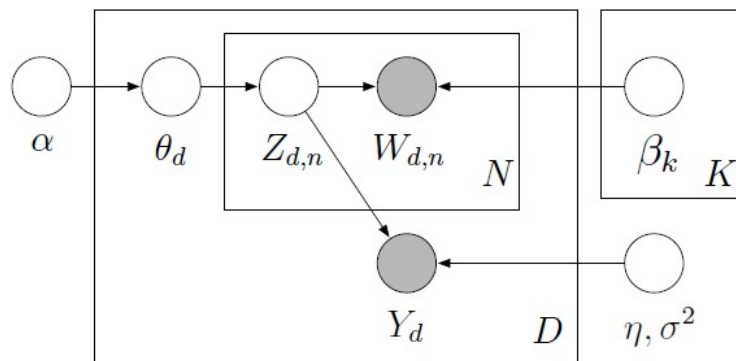


Supervised LDA [Blei & McAuliffe 07]



- 1 Draw topic proportions $\theta \mid \alpha \sim \text{Dir}(\alpha)$.
- 2 For each word
 - Draw topic assignment $z_n \mid \theta \sim \text{Mult}(\theta)$.
 - Draw word $w_n \mid z_n, \beta_{1:K} \sim \text{Mult}(\beta_{z_n})$.
- 3 Draw response variable $y \mid z_{1:N}, \eta, \sigma^2 \sim \text{N}(\eta^\top \bar{z}, \sigma^2)$, where

$$\bar{z} = (1/N) \sum_{n=1}^N z_n.$$