

Latent Rating Regression [Wang et al. 10]

- Data: a set of review documents with overall ratings: $C = \{(d, r_d)\}$
 - d is pre-segmented into k aspect segments
 - $c_i(w, d)$ = count of word w in aspect segment i (zero if w didn't occur)
- Model: predict rating based on d : $p(r_d | d)$

Overall Rating = Weighted Average of Aspect Ratings

$$r_d \sim N\left(\sum_{i=1}^k \alpha_i(d) r_i(d), \delta^2\right),$$

$$r_i(d) = \sum_{w \in V} c_i(w, d) \beta_{i,w}$$

$$\beta_{i,w} \in \mathcal{R}$$

Multivariate
Gaussian Prior

$$\bar{\alpha}(d) \sim N(\bar{\mu}, \Sigma)$$

Aspect-Specific
Sentiment of w

Aspect Rating = Sum of sentiment weights of words in the aspect