

Latent Rating Regression (cont.)

- Maximum Likelihood Estimate

– Parameters: $\Lambda = (\{\beta_{i,w}\}, \bar{\mu}, \Sigma, \delta^2)$

– ML estimate: $\Lambda^* = \arg \max_{\Lambda} \prod_{d \in C} p(r_d | d, \Lambda)$

- Aspect Rating for aspect i

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

$c_i(w, d) = 0$ for words not occurring in aspect segment i

- Aspect Weights: $\alpha_i(d)$ = weight on aspect i

$$\bar{\alpha}(d)^* = \arg \max_{\bar{\alpha}(d)} p(\bar{\alpha}(d) | \mu, \Sigma) p(r_d | d, \{\beta_{i,w}\}, \delta^2, \bar{\alpha}(d))$$

Maximum a Posteriori

Prior

Likelihood