goodness of fit: (GoF) a really good way to quantify

STAT 206
7 Mar 21

DJ extra OH

(1)

GoF is $\ell\ell(\hat{\underset{\sim}{\theta}}_{MLE} \mid D\,[SM]\,\mathcal{B})$:
big → good fit

$DIC(M_j \mid D\,[PM_j]\,\mathcal{B})$ (deviance of M_j)

THT 2
2(B)(h)(ii)

$$-2 \cdot \ell\ell(\hat{\theta}_{MLE} \mid D\,[SM_j]\,\mathcal{B}) + p_D$$

complexity penalty

$\underset{\sim}{\theta} = (\theta_1, \theta_2, \theta_3)$

	θ_1	θ_2	θ_3	γ	$I(\gamma > 0)$
1					
2					
$\vdots$					
m					
mean	$\bar{\theta}_1^*$	$\bar{\theta}_2^*$	$\bar{\theta}_3^*$	$\bar{\gamma}^*$	$\hat{P}(\gamma > 0 \mid D\,\mathcal{B})$

THT 2
2(A)(f)(ii)

the dataset because we were able to sample in an IID manner from the Dirichlet posterior dist.

$$\left\{ \begin{array}{l} (\mu\, \cancel{\sigma} \mid \mathcal{B}) \sim p(\mu\, \cancel{\sigma} \mid \mathcal{B}) \\ \cancel{(\theta_i \mid \mu\, \sigma\, \mathcal{N}\, \mathcal{B}) \stackrel{IID}{\sim} N(\mu, \sigma^2)} \quad \sigma^2 \to 0 \\ (y_i \mid \cancel{\theta_i}^{\,\mu}\, V_i\, \mathcal{B}) \stackrel{ind}{\sim} N(\cancel{\theta_i}^{\,\mu}, V_i) \end{array} \right\}$$

random-effects model (15)

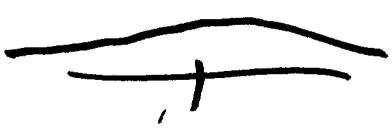
$\theta_1 = \mu, \ \theta_2 = \mu, \ \ldots, \ \theta_6 = \mu$

$$\left\{ \begin{array}{l} (\mu \mid \mathcal{B}) \sim p(\mu \mid \mathcal{B}) \leftarrow \\ (y_i \mid \mu\, V_i\, \mathcal{B}) \stackrel{IID}{\sim} N(\mu, V_i). \end{array} \right\}$$

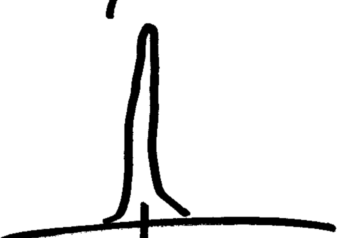
fixed effects model (25)

(σ^2 large)

$N(\mu$, big variance)



μ



μ

σ^2 close to 0

$N(\mu$, tiny variance)

as $\sigma \downarrow 0$,  $N(\mu, 0)$ = point mass at μ