

(22a)

$$p | X \stackrel{d}{=} \sum_{j=1}^k p_j^* \delta_{x_j^*} + R^* \tilde{p}^{(k)}$$

where  $p_1^* \cdots p_k^*, R^* \sim \text{Dir}(n_1 - \sigma, \dots, n_k - \sigma, \theta + k\sigma)$

and  $\tilde{p}^{(k)}$  is  $\text{PD}(\sigma, \theta + k\sigma)$ .