$$p(\bar{x}|\bar{\theta}) = h(\bar{x})\, g(\bar{\theta})\, e^{\bar{\eta}(\bar{\theta})^T \bar{t}(\bar{x}) - a(\bar{\theta})}$$

$$D = \{\bar{x}_1 \dots \bar{x}_N\}$$

$$p(D|\bar{\theta}) = \prod_n h(\bar{x}_n) \dots \qquad \xrightarrow{\bar{\theta}} \max$$

$$\log p(D|\bar{\theta}) = \sum_n \log h(\bar{x}_n) - N \cdot a(\bar{\theta}) + \sum_n \bar{\eta}(\bar{\theta})^T \bar{t}(\bar{x}_n) =$$

$$= \underbrace{\sum_n \log h(\bar{x}_n)}_{\text{const}} - N \cdot a(\bar{\theta}) + \bar{\eta}(\bar{\theta})^T \cdot \left(\sum_n \bar{t}(\bar{x}_n)\right) \xrightarrow{\bar{\theta}} \max$$

$$+ \log p(\bar{\theta})$$

sufficient statistics: N, $\sum_n \bar{t}(\bar{x}_n)$

Koopman – Pitman – Darmois

Если у распр. есть конеч. число дост. ст. L

т.е. $\forall D = \{\bar{x}_1, \dots \bar{x}_N\}$

достат. L чисел, чтобы найти $\bar{\theta}_{ML}$, $\bar{\theta}_{MAP}$. ___

То это из экспон. семейства.