$$\mathcal{N}(\mu_{ heta}, \sigma_{ heta}^2)$$
 $\mathcal{N}(\mu_{ heta}, \sigma_{ heta}^2)$ $\mathcal{N}(\mu_{a}, \sigma_{a}^2)$

$$diff$$

$$dif$$

$$\mathcal{L}ogistic$$

$$M$$

$$x_{ij} \sim \mathcal{L}(d_{ij}, a_j)$$

 $d_{ij} = \boldsymbol{\theta}_i - \boldsymbol{\delta}_j$

Item Characteristic Curve mapping ability to expected response:

$$E[x_{ij}|\boldsymbol{\delta}_j, a_j] = \frac{1}{1 + \exp(-a_j(\boldsymbol{\theta}_i - \boldsymbol{\delta}_j))}$$