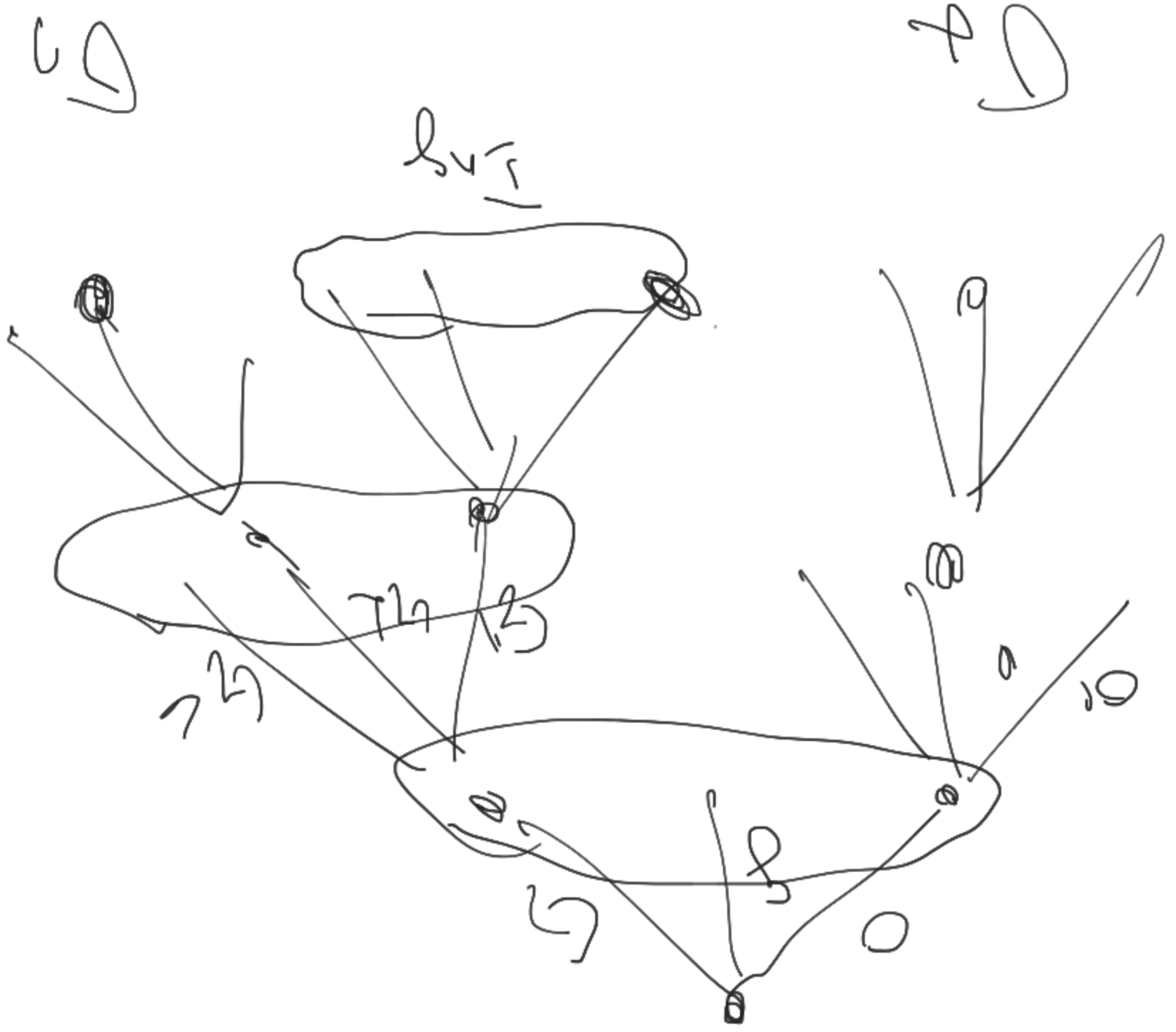
Crude

$$I_{ng} = (1-\sigma_1) \ln \sum_{k=1}^{f_{ng}} \exp\left(\delta_k/(1-\sigma_1)\right)$$

$$I_g = (1-\sigma_2) \ln \sum_{n=1}^{n_g} \exp\left(I_{ng}/(1-\sigma_2)\right)$$

$$I = \ln\left(1 + \sum_{g=1}^{G} \exp(I_g)\right)$$



$\sigma = (\sigma_1, \sigma_2)$ são os parâmetros de correlação dentro de cada ramo.

$\begin{cases} \sigma_1 \rightarrow \text{serdgrupo} \\ \sigma_2 \rightarrow \text{grupo} \end{cases}$

1) Demanda ★ agregada

$$q_j = \sum_{i=1}^{I} s_j(\delta, \sigma)\, d_{ij} = s_j(\delta, \sigma) \cdot I \quad \text{(dem. unitária)}$$

$$q_j = \sum_{i=1}^{I} s_j(\delta, \sigma)\, d_{ij} = s_j(\delta, \sigma) \frac{B}{P_j} \quad \text{(despesa constante)}$$

$$B = \delta Y, \quad Y = \sum_{i=1}^{I} y_i$$

Probabilidade de escolha: $s_j = s_j(\delta, \sigma)$ (*)

$\delta = x\beta - \alpha p + \xi$

Preciso inverter a equação (*):

$\delta_j = \delta_j(s, \sigma)$

Berry (1994):

$\delta_j = \ln(s_j/s_0) - \sigma_1 \ln(s_{j|hg}) - \sigma_x \ln(s_{h|g})$

$$\ln\left(\frac{s_j}{s_0}\right) = x_j\beta - \alpha p_j + \gamma_1 \ln s_{j1g} + \gamma_2 \ln s_{h1g} + \xi_j$$