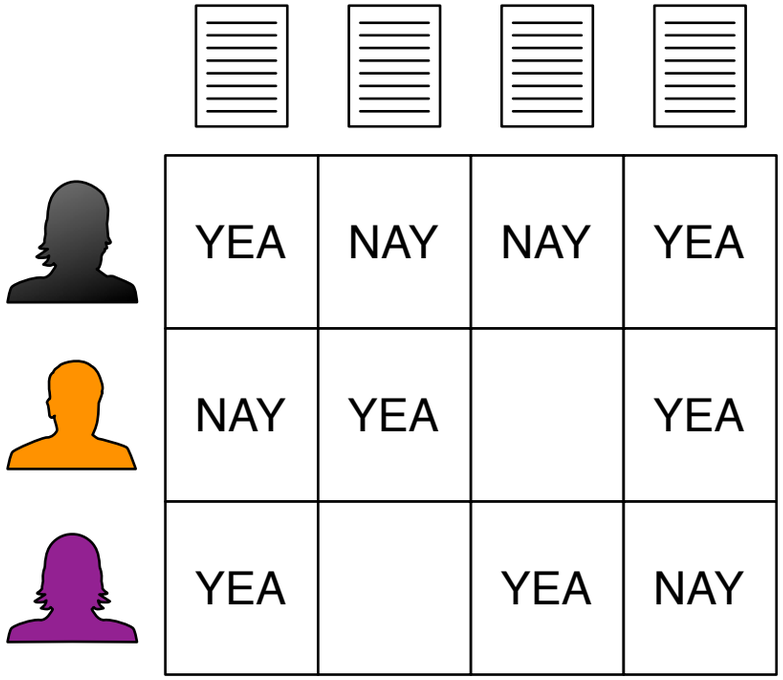
Legislator a votes 'Yea' on bill b with probability



Multi-dimensional ideal point of legislator a

$$p(v_{a,b} = \text{Yea}) = \Phi\left(\sum_{k=1}^{K} u_{a,k} x_{b,k} + y_b\right)$$

K dimensions