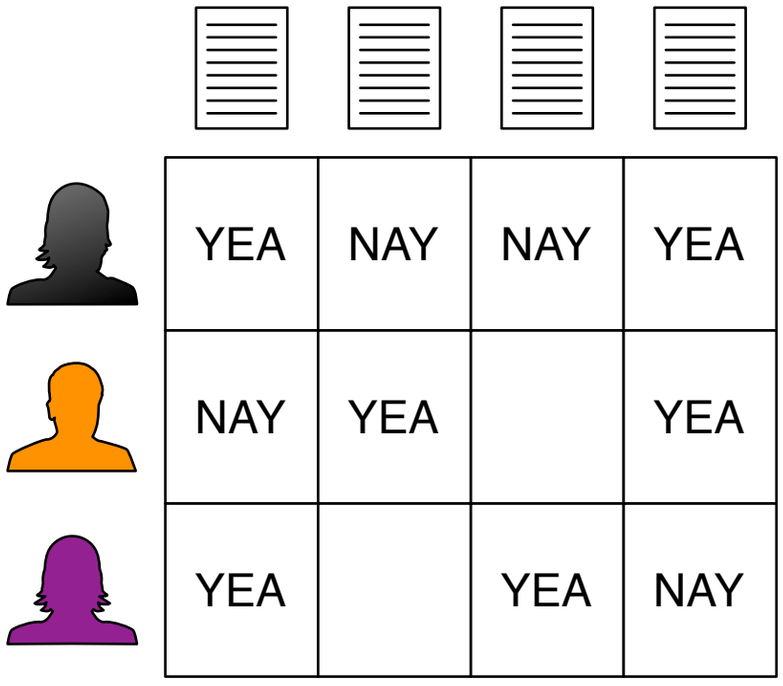

Legislator a votes 'Yea' on bill b with probability

One-dimensional ideal point of legislator a

$$p(v_{a,b} = \text{Yea}) = \Phi(u_a x_b + y_b)$$

Polarity of bill b

Popularity of bill b