## Legislator a votes 'Yea' on bill b with probability





		YEA	NAY	NAY	YEA
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)	NAY	YEA	YEA



YEA YEA NA
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FA NAY NAY YEA

AY YEA YEA

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