

$$p(y_{\text{emp}}^{x,y} = 1 | \dots) \propto \exp[\langle \mathbf{f}_{\text{emp}}^{x,y}, \mathbf{w}_{\text{emp}}^N \rangle + \langle \mathbf{v}^{x,y}, \mathbf{w}_{\text{emp}}^F \rangle]$$