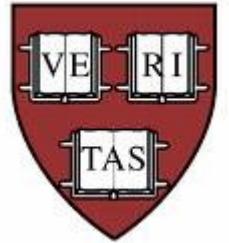


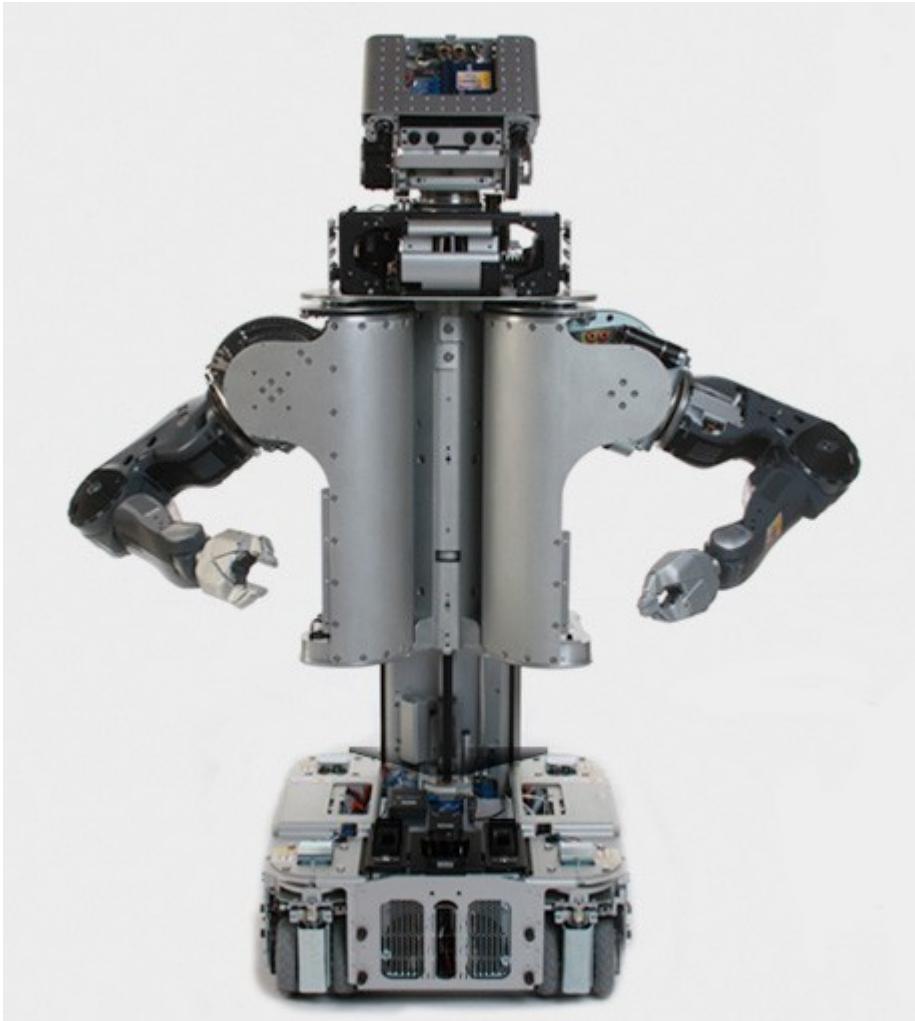
Parallel POMDP Solver



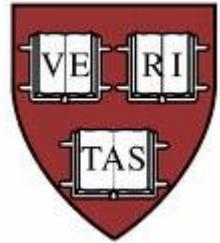
Mark Woodward
CS Grad Student



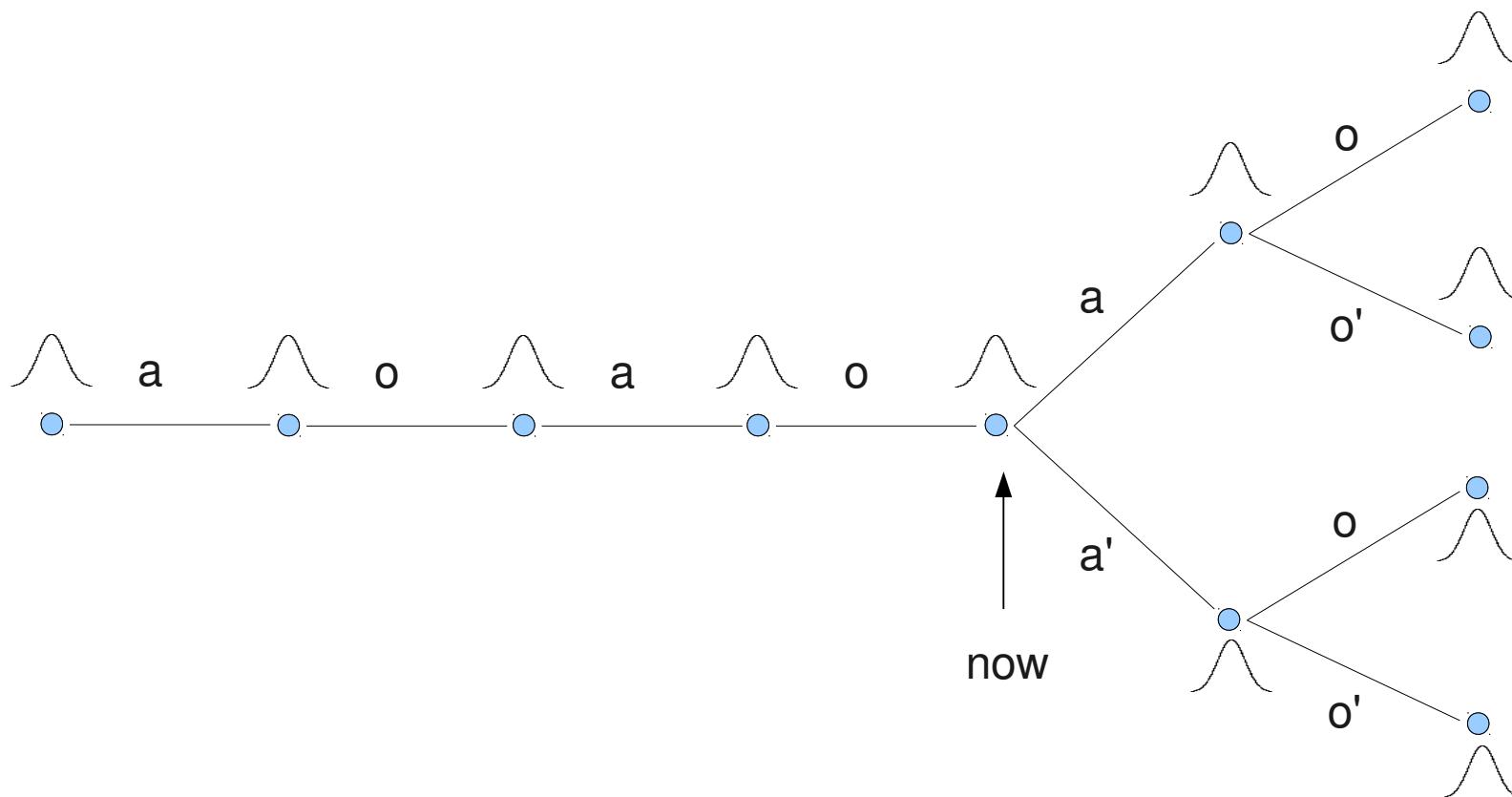
Learning from humans

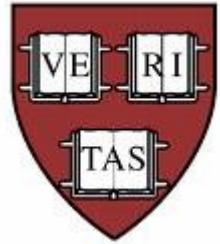


Mark Woodward, Harvard Micro-robotics Laboratory

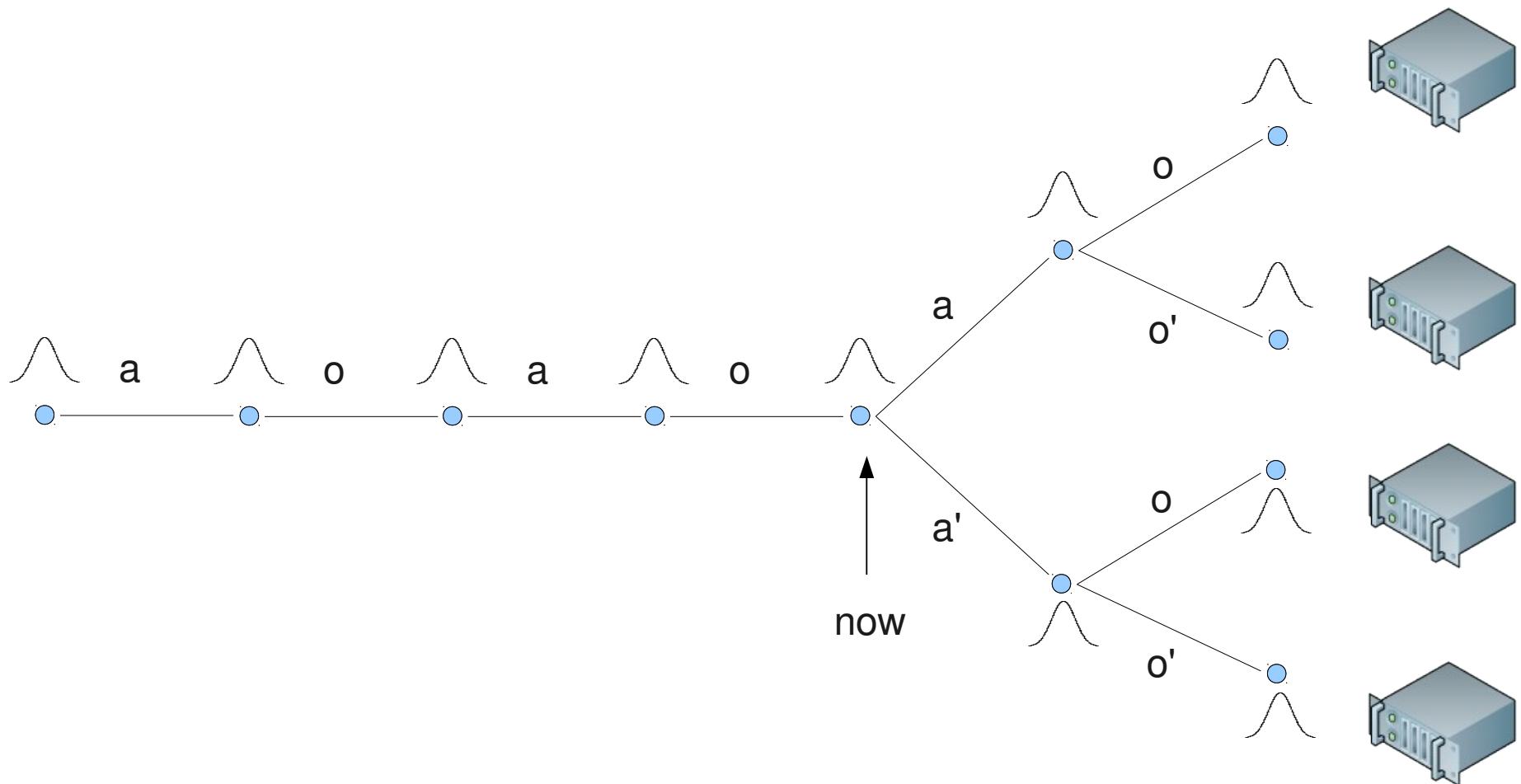


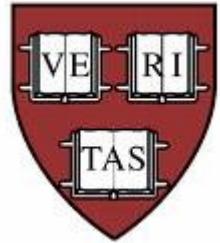
POMDP



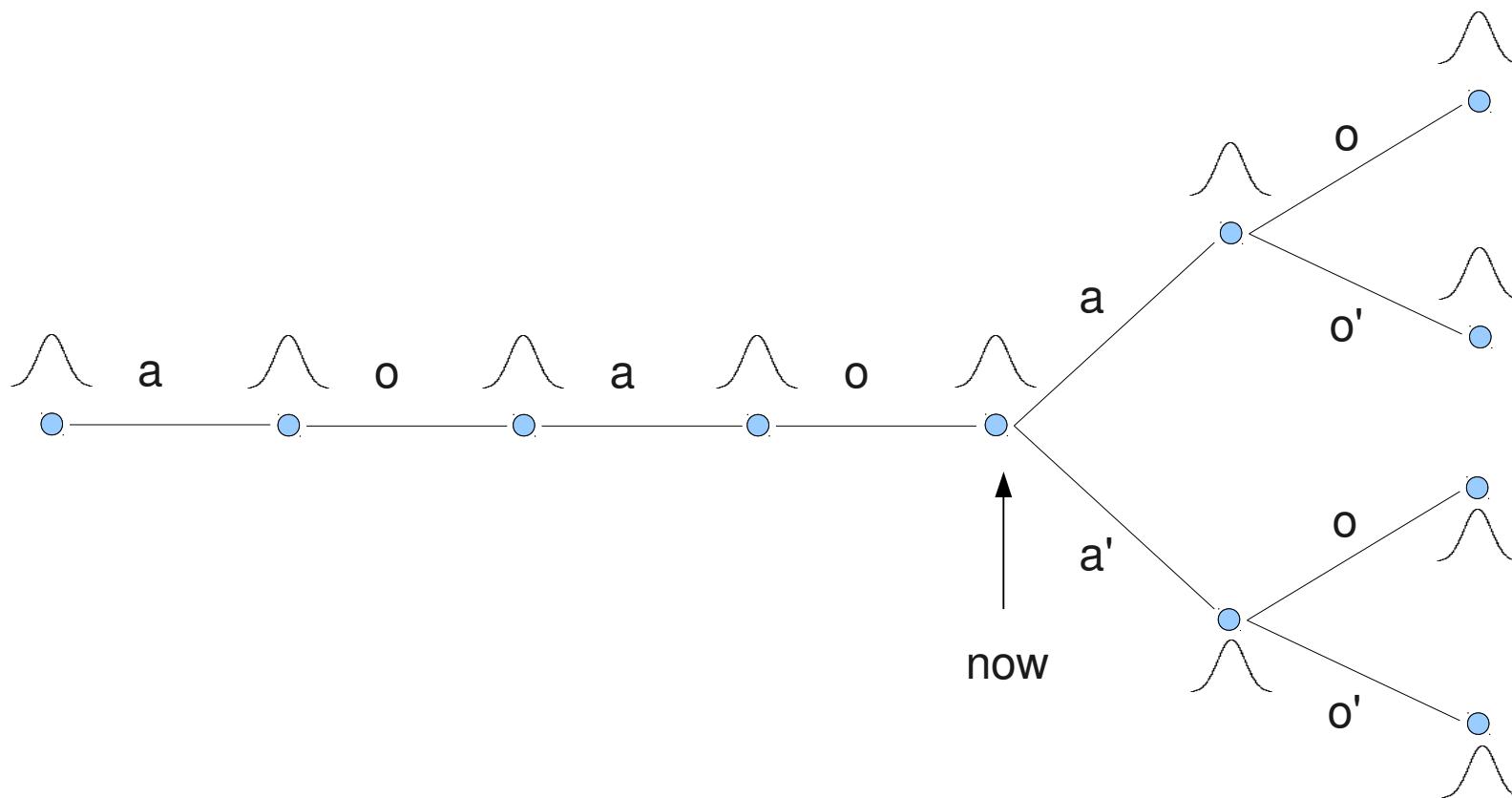


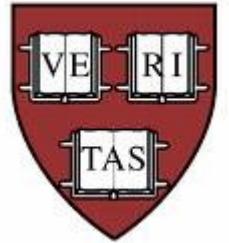
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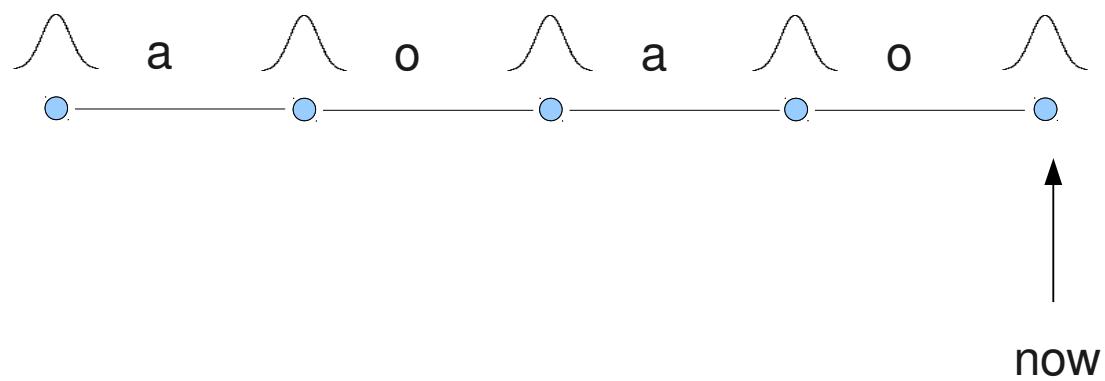


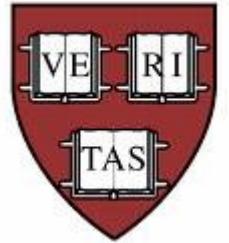
POMDP: Idea



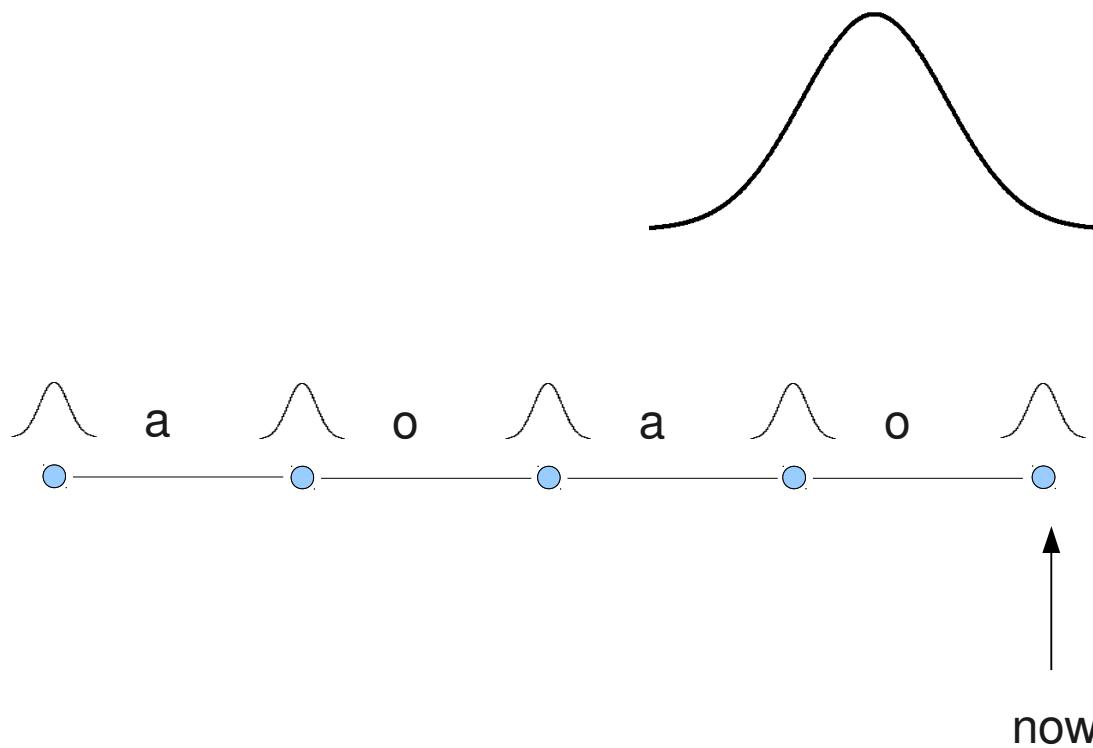


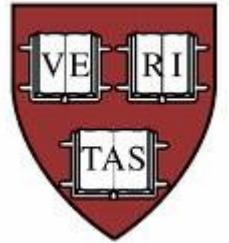
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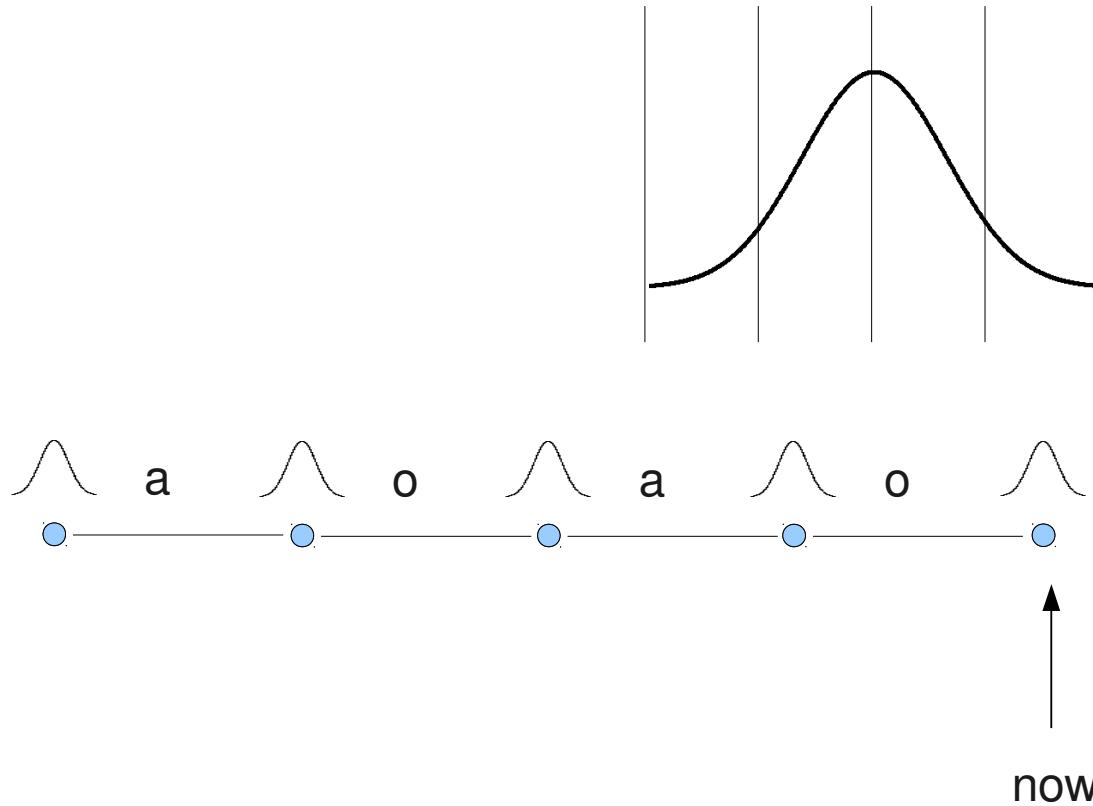


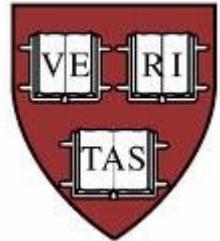
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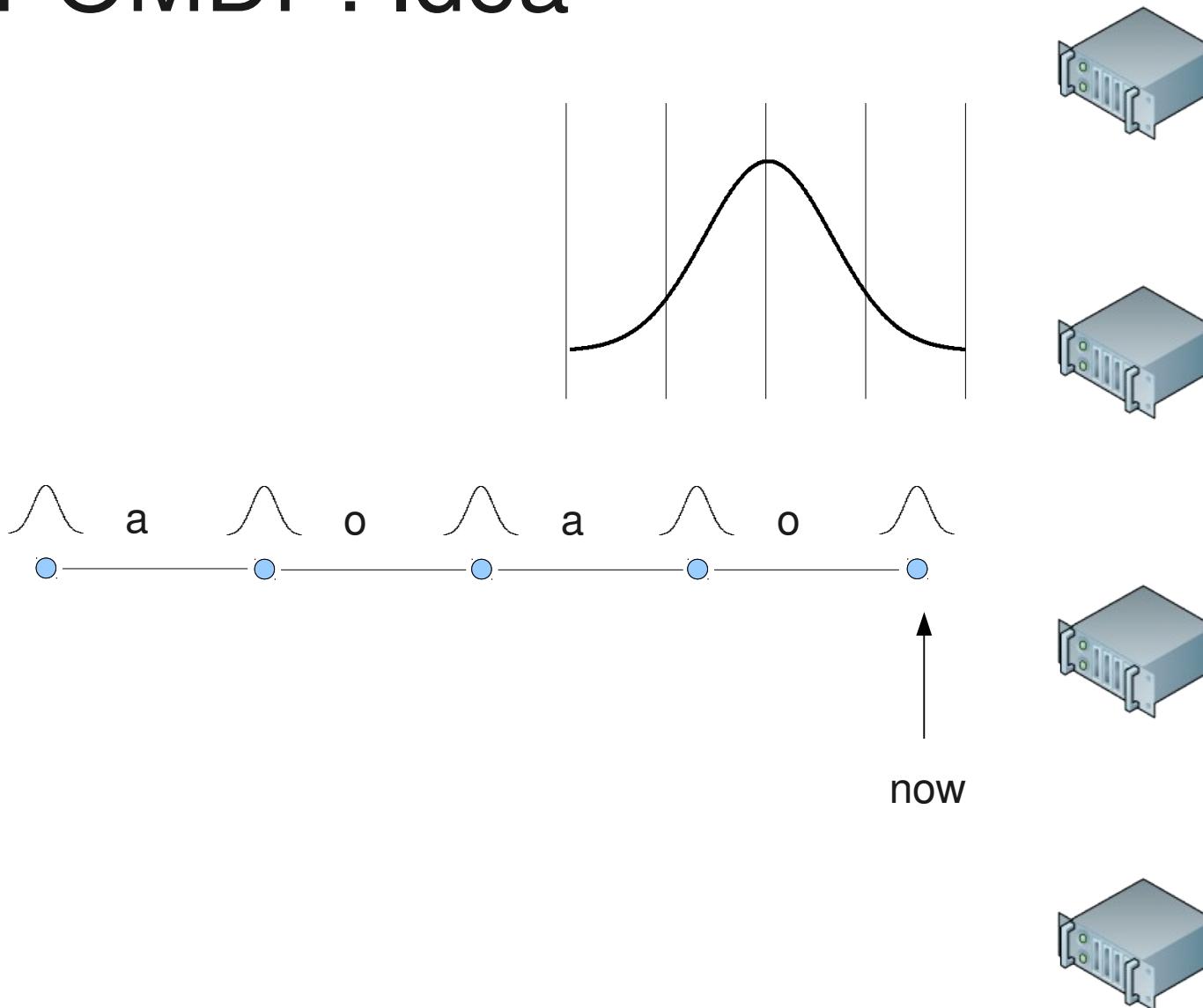


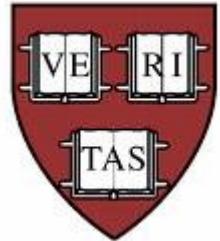
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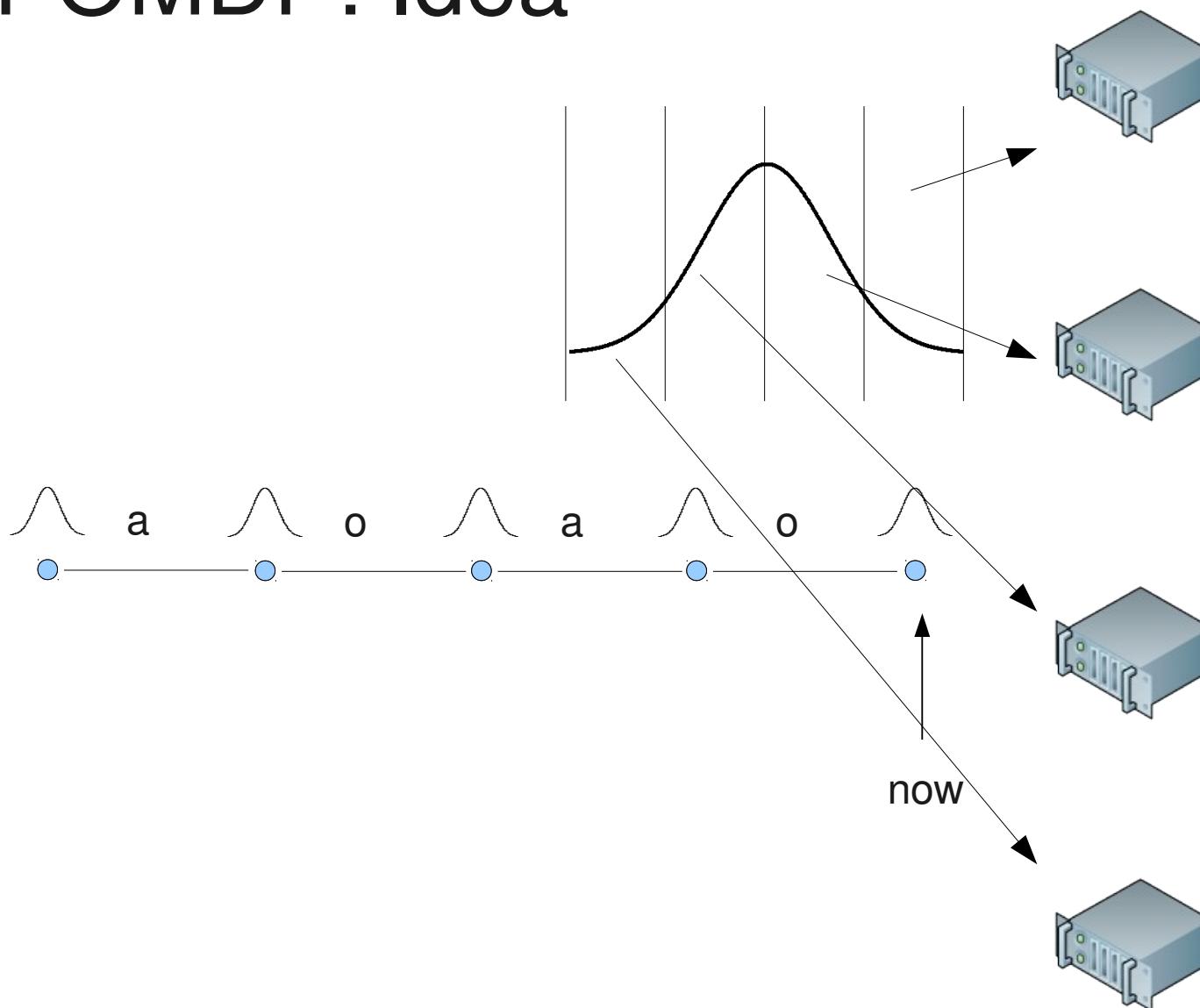


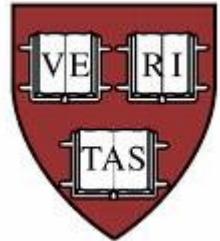
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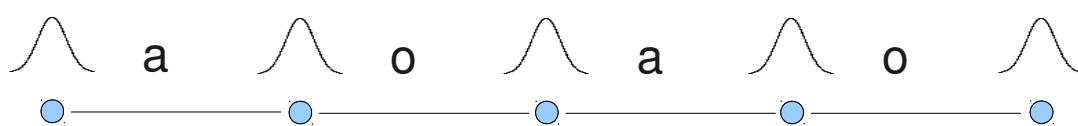


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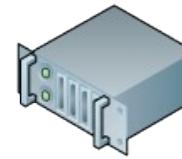
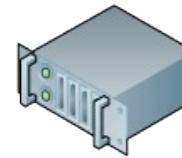
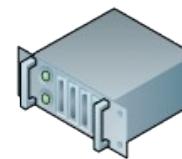
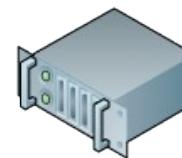




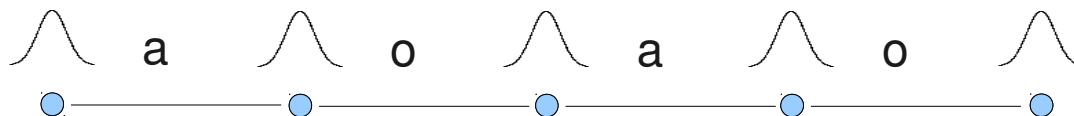
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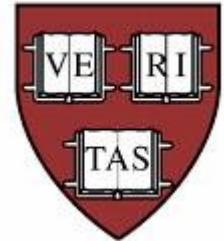
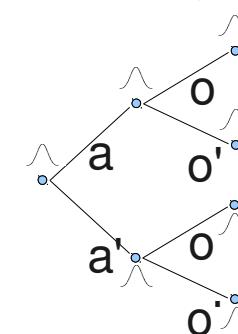
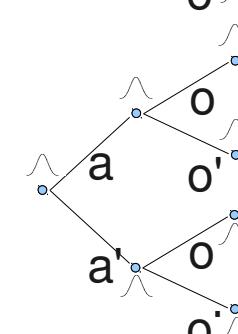
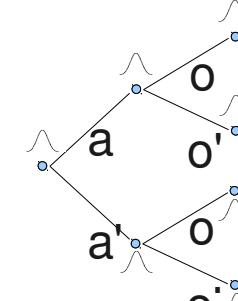
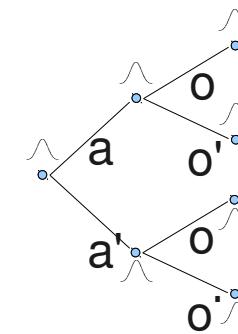
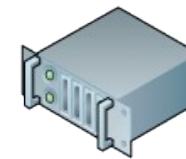
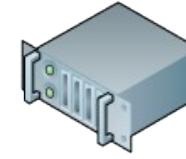
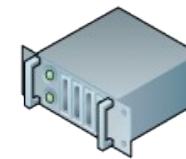
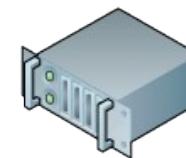
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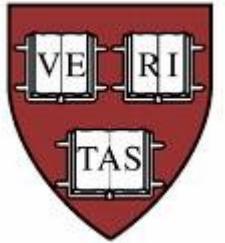


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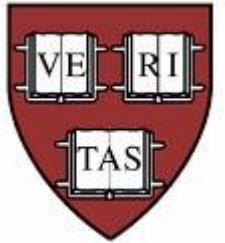
↑
now





Distributed Entropy

$$\begin{aligned} Entropy &= - \sum_{x^t} p(x^t | z^{t:1}, a^{t:1}) \log(p(x^t | z^{t:1}, a^{t:1})) \\ &= - \sum_{x_t} \frac{\underline{p}(x^t | z^{t:1}, a^{t:1})}{\underline{p}(z^t | z^{t-1:1}, a^{t:1})} \log \left(\frac{\underline{p}(x^t | z^{t:1}, a^{t:1})}{\underline{p}(z^t | z^{t-1:1}, a^{t:1})} \right) \\ &= - \sum_{x_t} \frac{\underline{p}(x^t | z^{t:1}, a^{t:1})}{\underline{p}(z^t | z^{t-1:1}, a^{t:1})} \log(\underline{p}(x^t | z^{t:1}, a^{t:1})) + \sum_{x_t} \frac{\underline{p}(x^t | z^{t:1}, a^{t:1})}{\underline{p}(z^t | z^{t-1:1}, a^{t:1})} \log(\underline{p}(z^t | z^{t-1:1}, a^{t:1})) \\ &= - \sum_{x_t} \frac{\underline{p}(x^t | z^{t:1}, a^{t:1})}{\underline{p}(z^t | z^{t-1:1}, a^{t:1})} \log(\underline{p}(x^t | z^{t:1}, a^{t:1})) + \log(\underline{p}(z^t | z^{t-1:1}, a^{t:1})) \sum_{x_t} p(x^t | z^{t:1}, a^{t:1}) \\ &= \frac{1}{\underline{p}(z^t | z^{t-1:1}, a^{t:1})} \left(- \sum_{x_t} p(x^t | z^{t:1}, a^{t:1}) \log(\underline{p}(x^t | z^{t:1}, a^{t:1})) \right) + \log(\underline{p}(z^t | z^{t-1:1}, a^{t:1})) \end{aligned}$$



Results

