

VITERBI algorithm - a solution

$$m_{1:1} = \begin{cases} 0.8182 \\ 0.1818 \end{cases}$$

$$t=1, U_1 = \text{gar} \quad (\text{Starts})$$

$$t=2, U_2 = \text{lg}$$

$$m_{1:2} = P(U_2 | R_2) \cdot \max_{v_1} P(R_2 | v_1) m_{1:1}$$

$R_2 = 1/H$ $v_1 = 1/H$

$$\begin{aligned} R_2 = 1 & \begin{cases} \xrightarrow{0.7} P(R_2 | v_1 = \text{lg}) \cdot m_{1:1}(\text{lg}) = 0.57274 \\ \xrightarrow{0.3} P(R_2 | v_1 = \text{H}) \times 0.1818 = \dots \end{cases} \end{aligned}$$

max

$$\rightarrow 0.9 \times 0.57274 = 0.5155$$

$$\rightarrow 0.2 \max_{v_1} P(R_2 | v_1) m_{1:1} \begin{cases} \xrightarrow{v_1 = 1} 0.3 \cdot 0.8182 = 0.24546 \\ \xrightarrow{v_1 = H} 0.7 \cdot 0.1818 = 0.12726 \end{cases}$$

$$\hookrightarrow 0.2 \cdot 0.24546 = 0.0991$$

