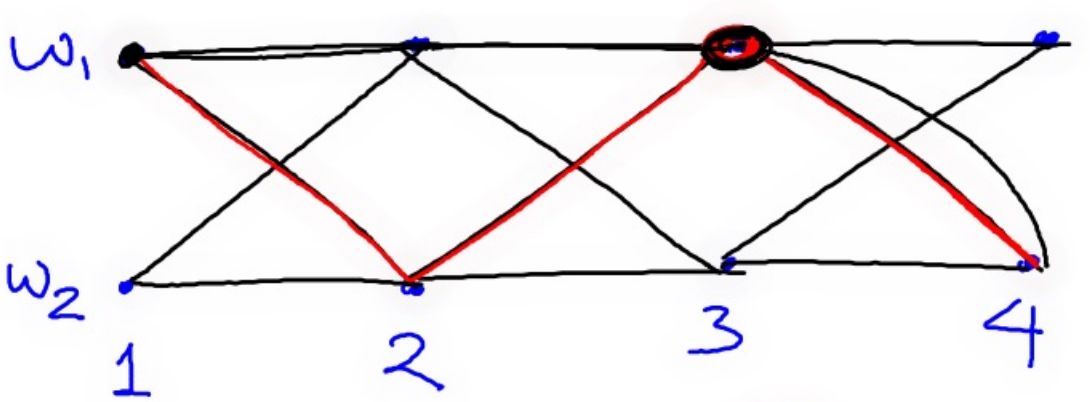
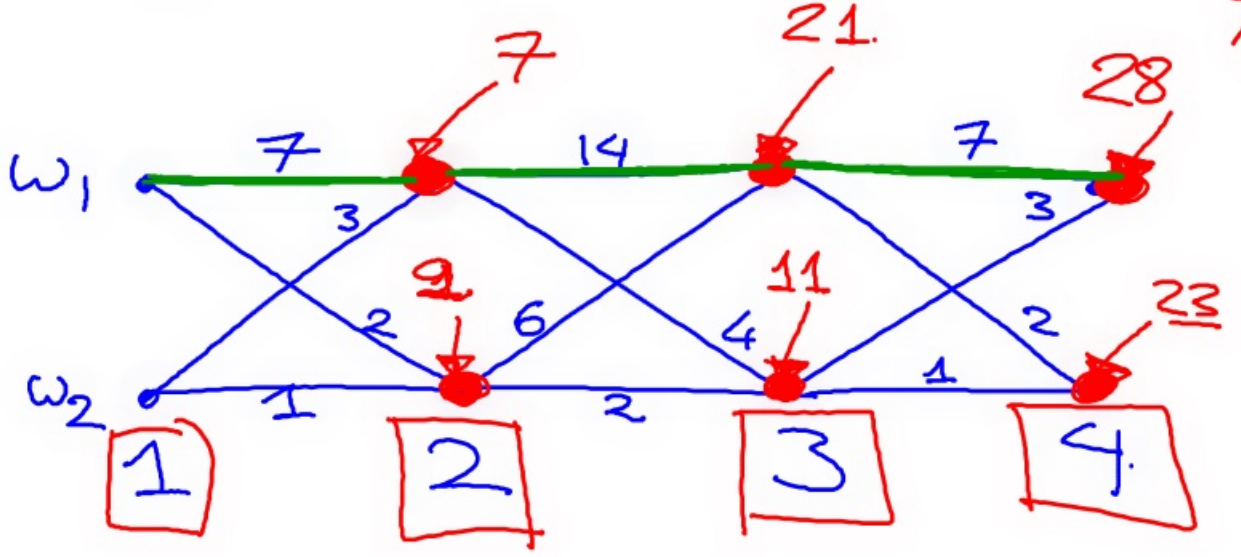




21+7=28
11+3=14.

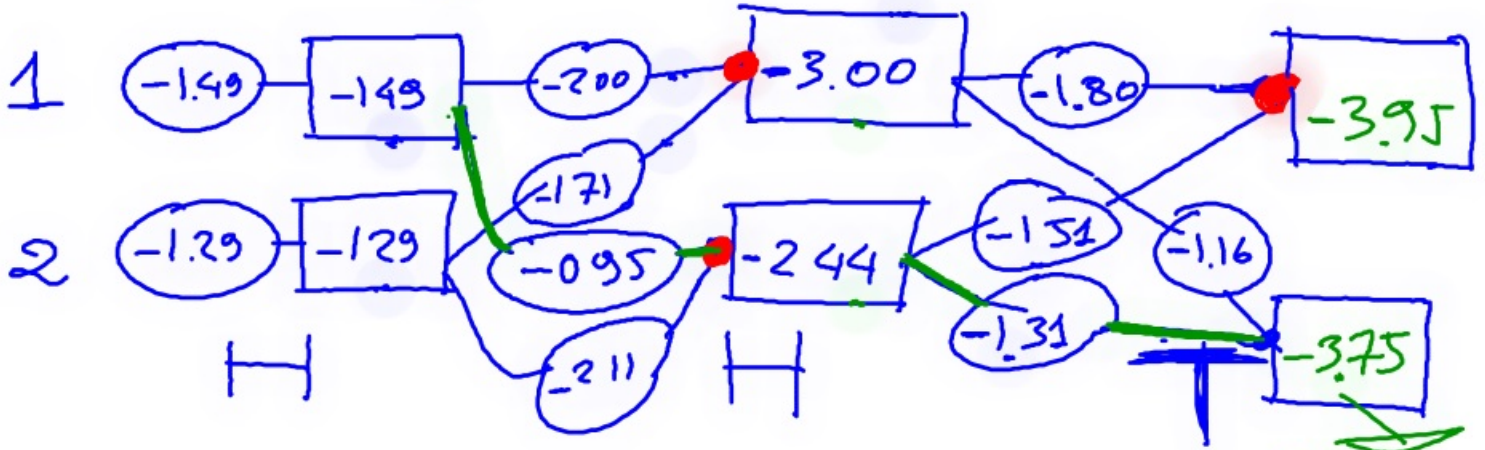
21
8

11
4

Problem 2. Discovery

$$a = \begin{bmatrix} 0.3 & 0.7 \\ 0.4 & 0.6 \end{bmatrix} \quad b[H] = \begin{bmatrix} 0.45 \\ 0.55 \end{bmatrix} \quad b[T] = \begin{bmatrix} 0.55 \\ 0.45 \end{bmatrix}$$

$$\pi = \begin{bmatrix} 0.5 \\ 0.5 \end{bmatrix}$$



$\pi_1 \; b_1[H]$

$\ln \pi_1 + \ln b_1[H] = -1.49$

$\ln \pi_2 + \ln b_2[H] = -1.29$

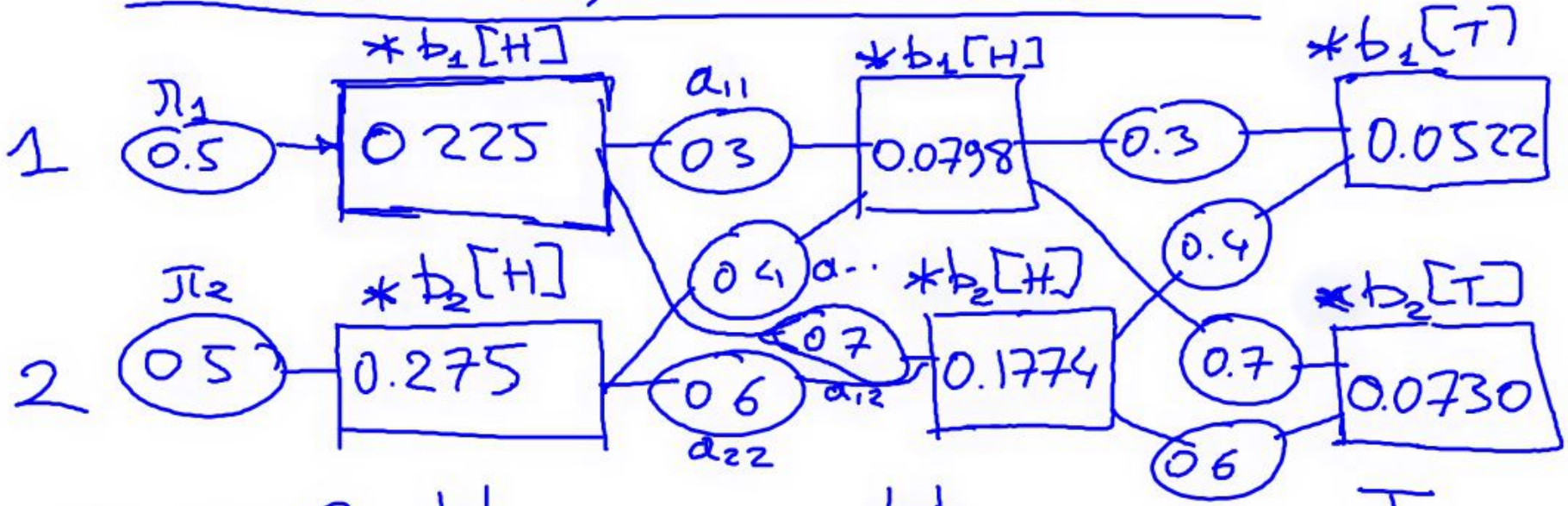
Sequence of states: 1 2.

$\ln a_{11} + \ln b_1[H] = -2.00$

$\ln a_{12} + \ln b_2[H] = -0.95$

$\ln a_{11} + \ln b_1[T] = -1.80$

Problem 1, same a, b, π



$$0225\times 03\times b_1[H] + 0275\times 0.4\, b_1[H]$$

H H T

$$A_1 = \begin{array}{r} 0225 \\ +0.275 \\ \hline A_1 = 05 \end{array} \qquad A_2 = \begin{array}{r} 0.0798 \\ +01774 \\ \hline A_2 = 0.2572 \end{array} \qquad A_3 = \begin{array}{r} 0.0522 \\ +0.0730 \\ \hline A_3 = 0.1252 \end{array}$$