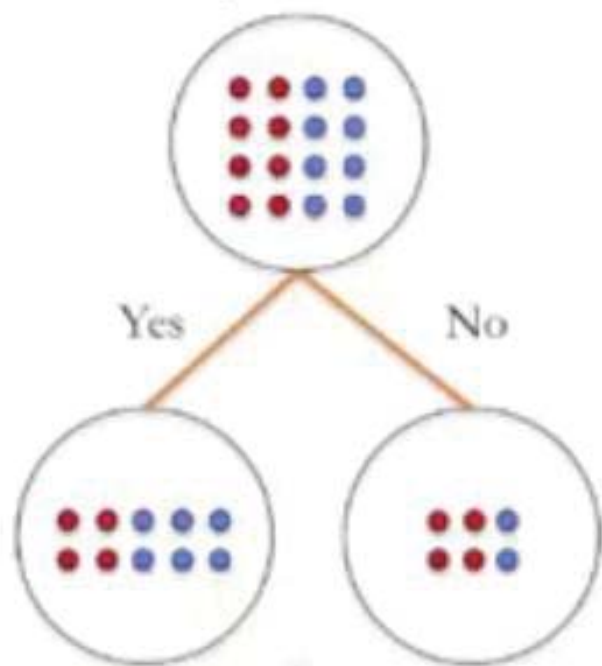
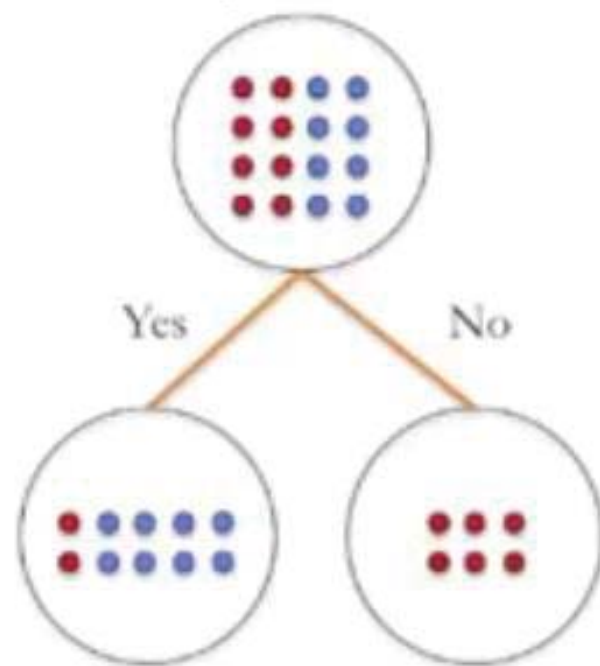
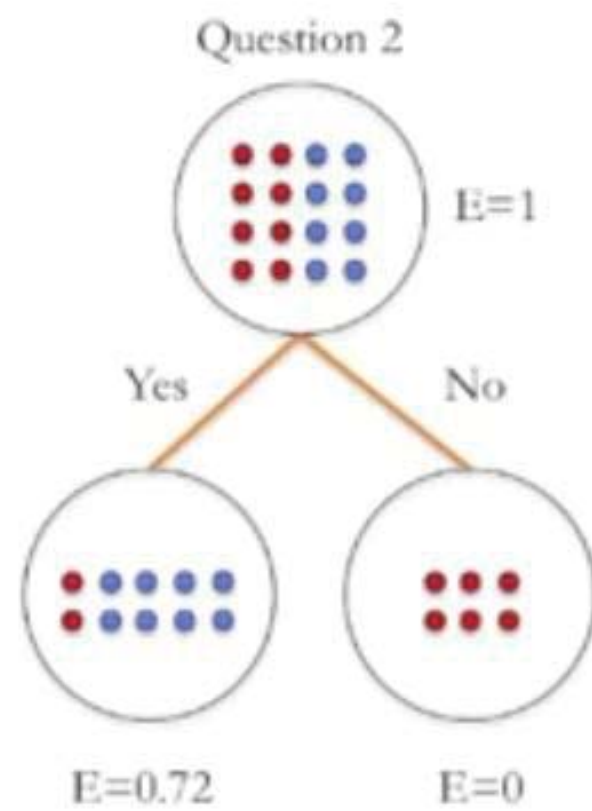
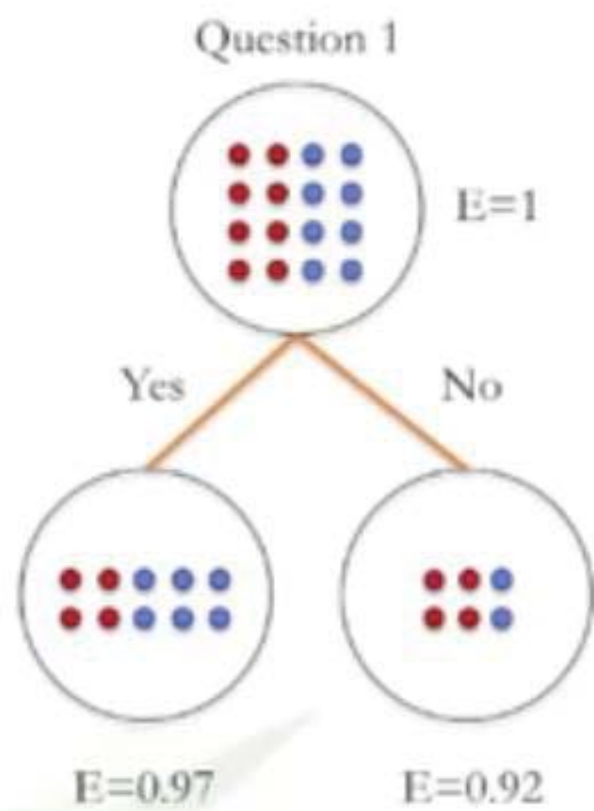


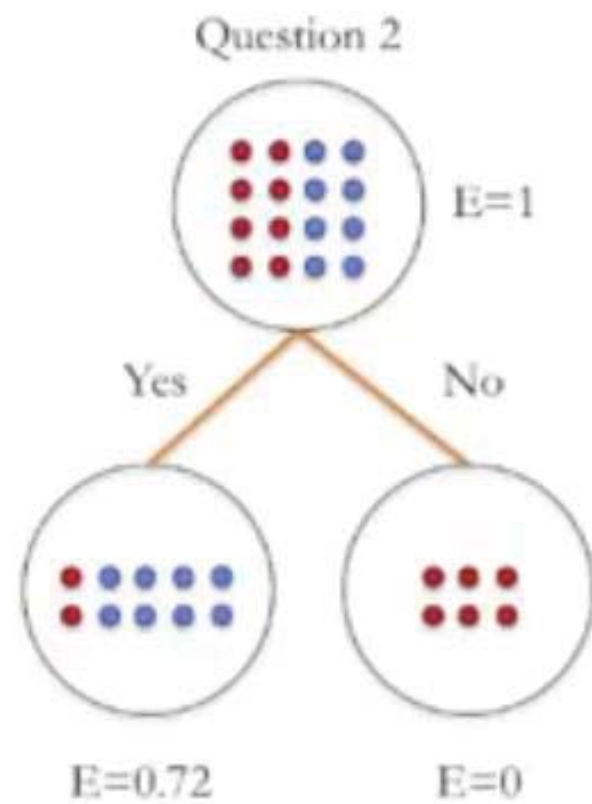
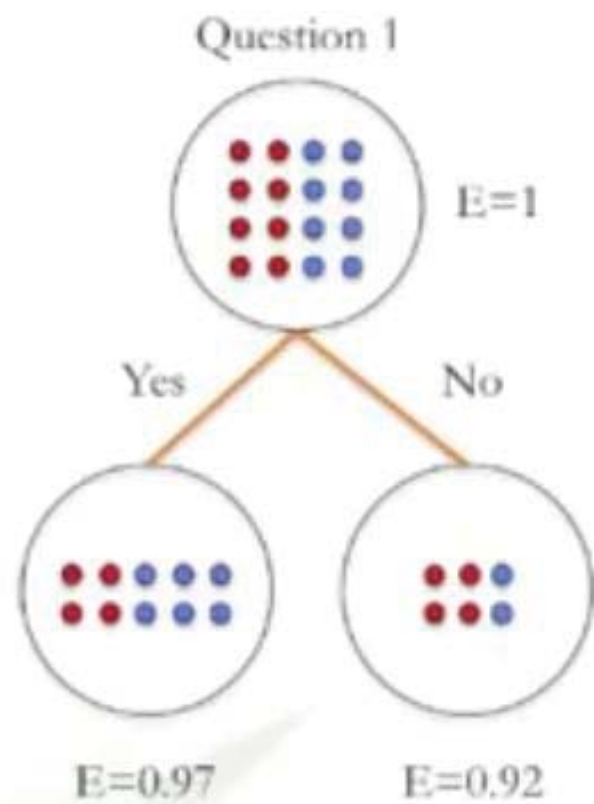
Question 1



Question 2

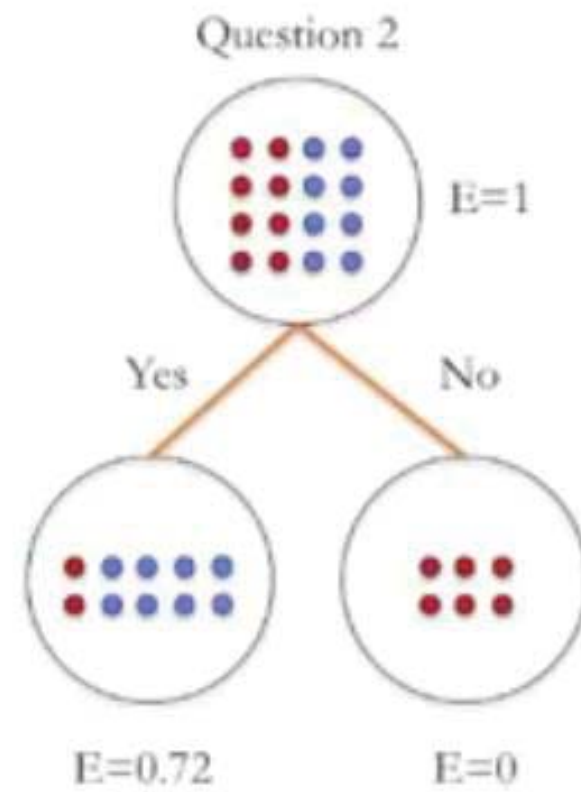
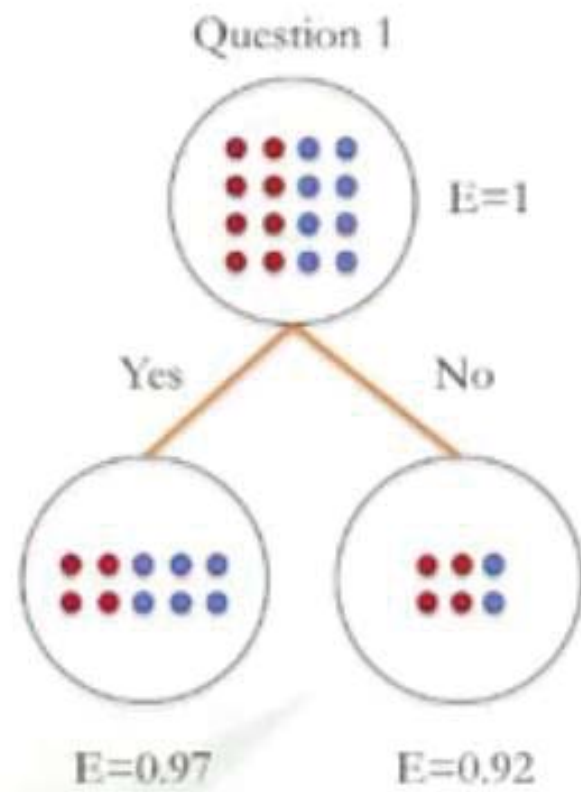




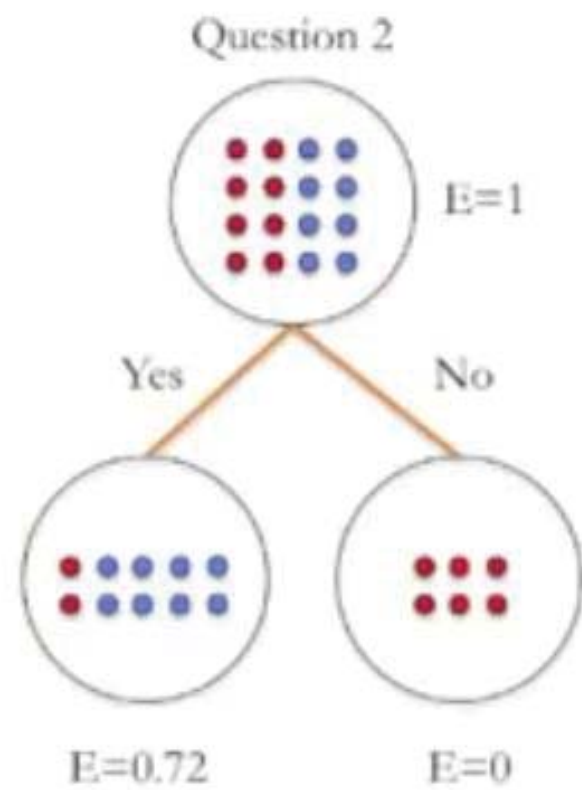
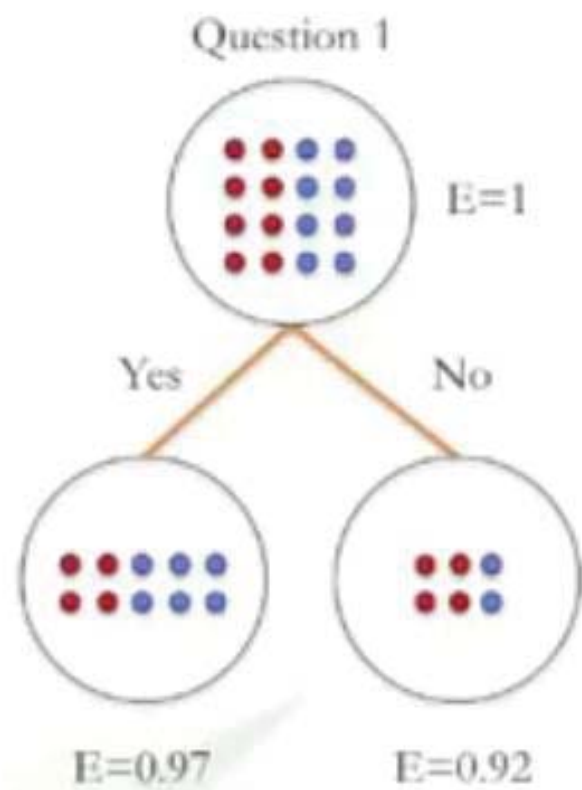


Information Gain

$$G(S, Q) = E(S) - \sum_{i=1}^k p_i E(S, Q_i)$$

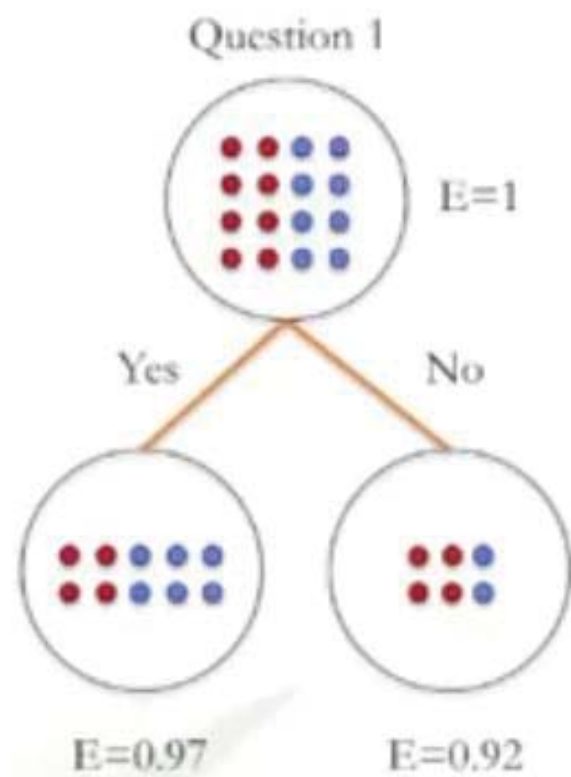


$$G(S, Q_1) = 1 - \left(\frac{10}{16}\right) \times 0.97 - \left(\frac{6}{16}\right) \times 0.92$$



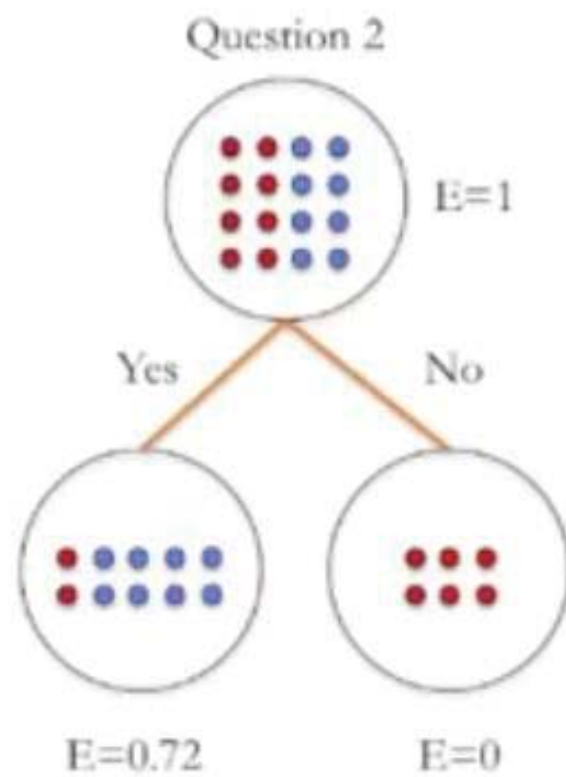
$$G(S, Q_1) = 1 - \left(\frac{10}{16}\right) \times 0.97 - \left(\frac{6}{16}\right) \times 0.92$$

$$G(S, Q_1) = 0.049$$



$$G(S, Q_1) = 1 - \left(\frac{10}{16}\right) \times 0.97 - \left(\frac{6}{16}\right) \times 0.92$$

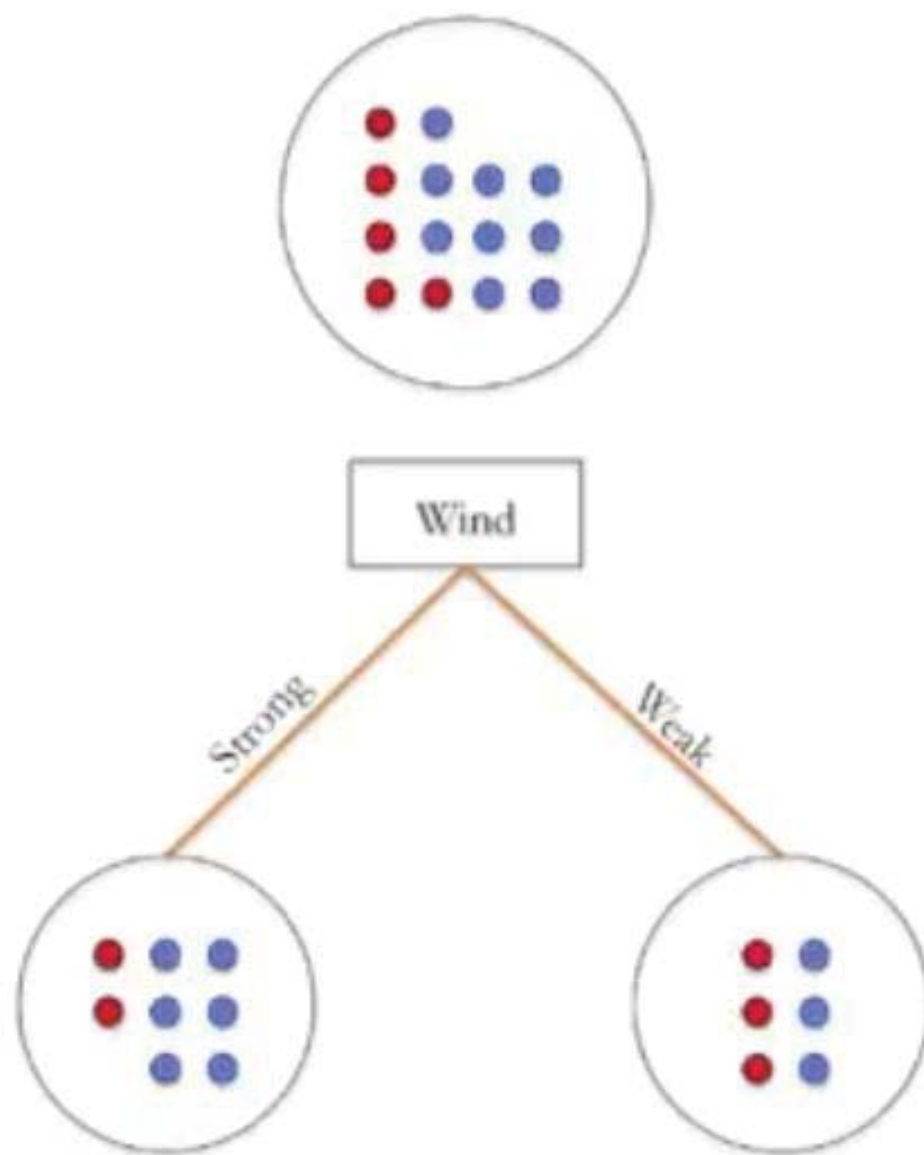
$$G(S, Q_1) = 0.049$$

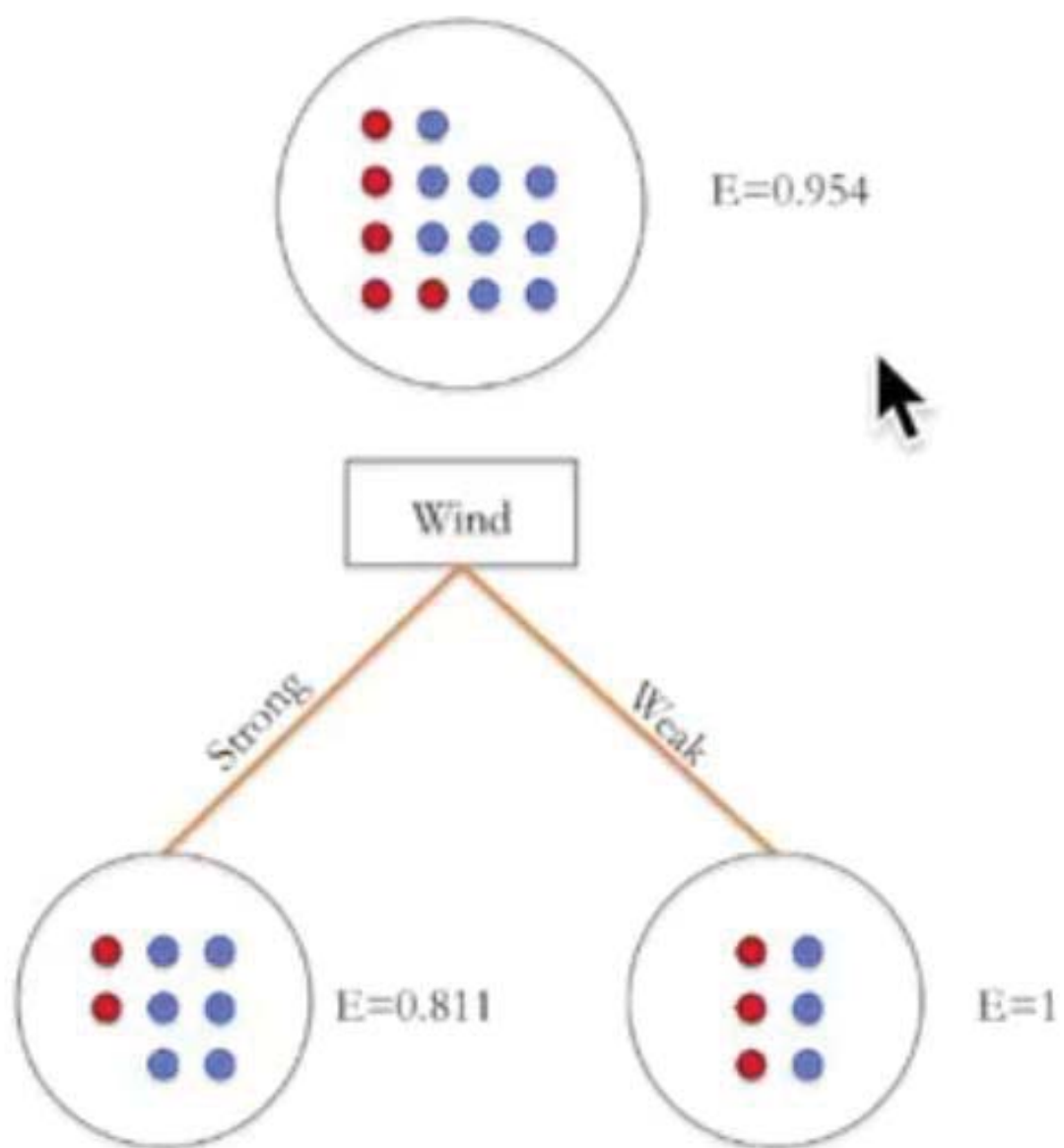


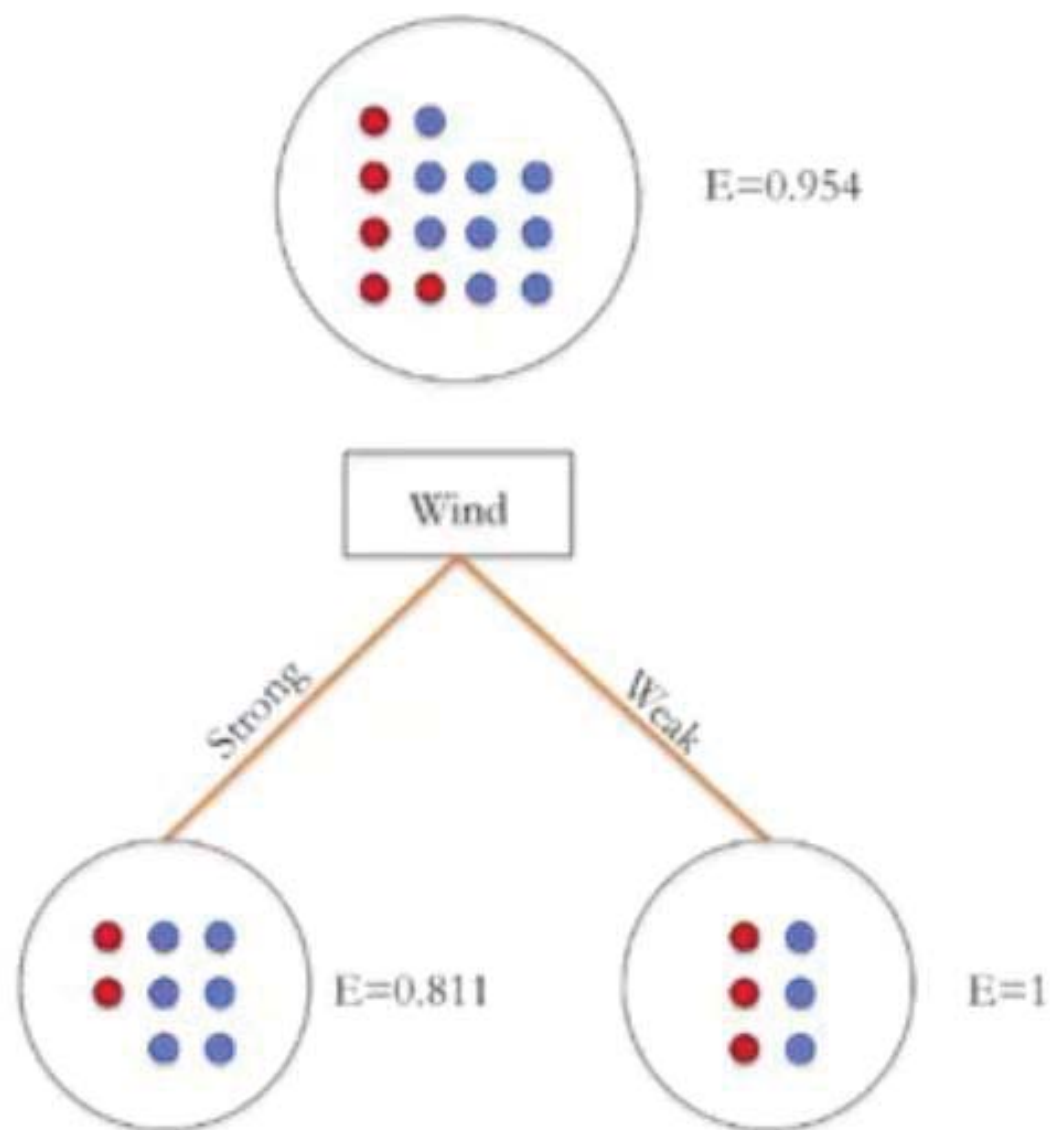
$$G(S, Q_2) = 1 - \left(\frac{10}{16}\right) \times 0.72 - \left(\frac{6}{16}\right) \times 0$$

$$G(S, Q_2) = 0.55$$

Day	Outlook	Temp	Humidity	Wind	Play Tennis
1	Sunny	Hot	High	Weak	No
2	Sunny	Hot	High	Strong	No
3	Overcast	Hot	High	Weak	Yes
4	Rainy	Mild	High	Weak	Yes
5	Rainy	Cool	Normal	Weak	Yes
6	Rainy	Cool	Normal	Strong	No
7	Overcast	Cool	Normal	Weak	Yes
8	Sunny	Mild	High	Weak	No
9	Sunny	Cool	Normal	Weak	Yes
10	Rainy	Mild	Normal	Strong	Yes
11	Sunny	Mild	Normal	Strong	Yes
12	Overcast	Mild	High	Strong	Yes
13	Overcast	Hot	Normal	Weak	Yes
14	Rainy	Mild	High	Strong	No

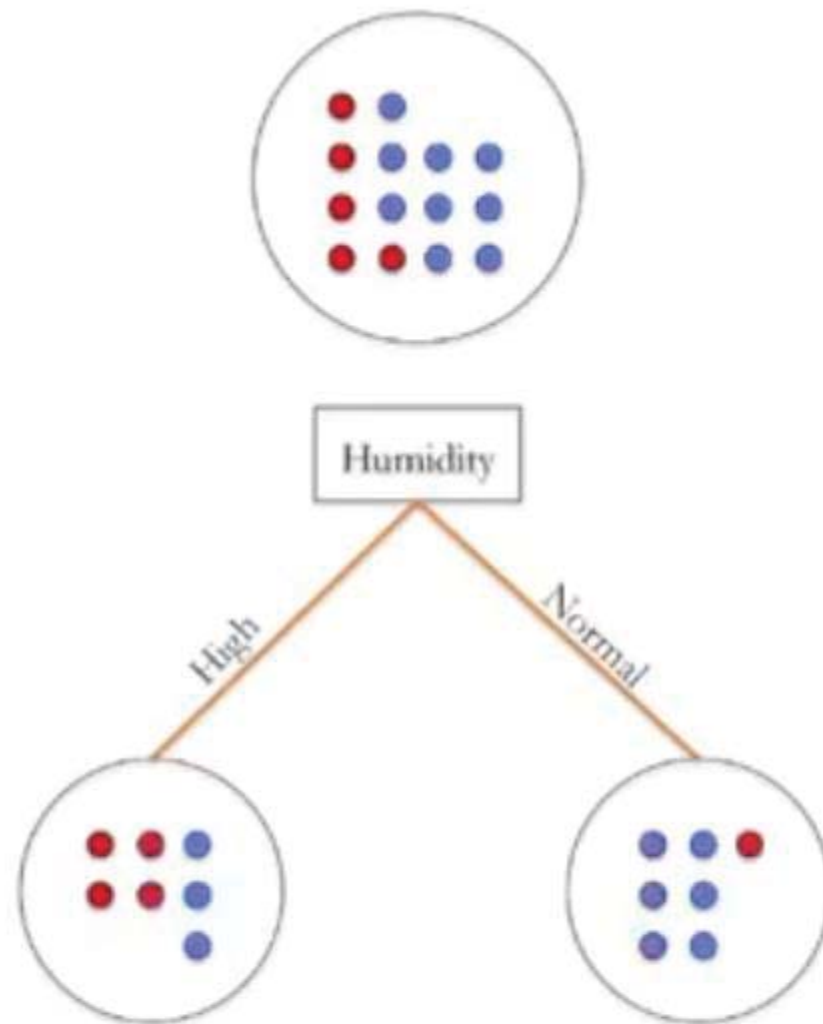


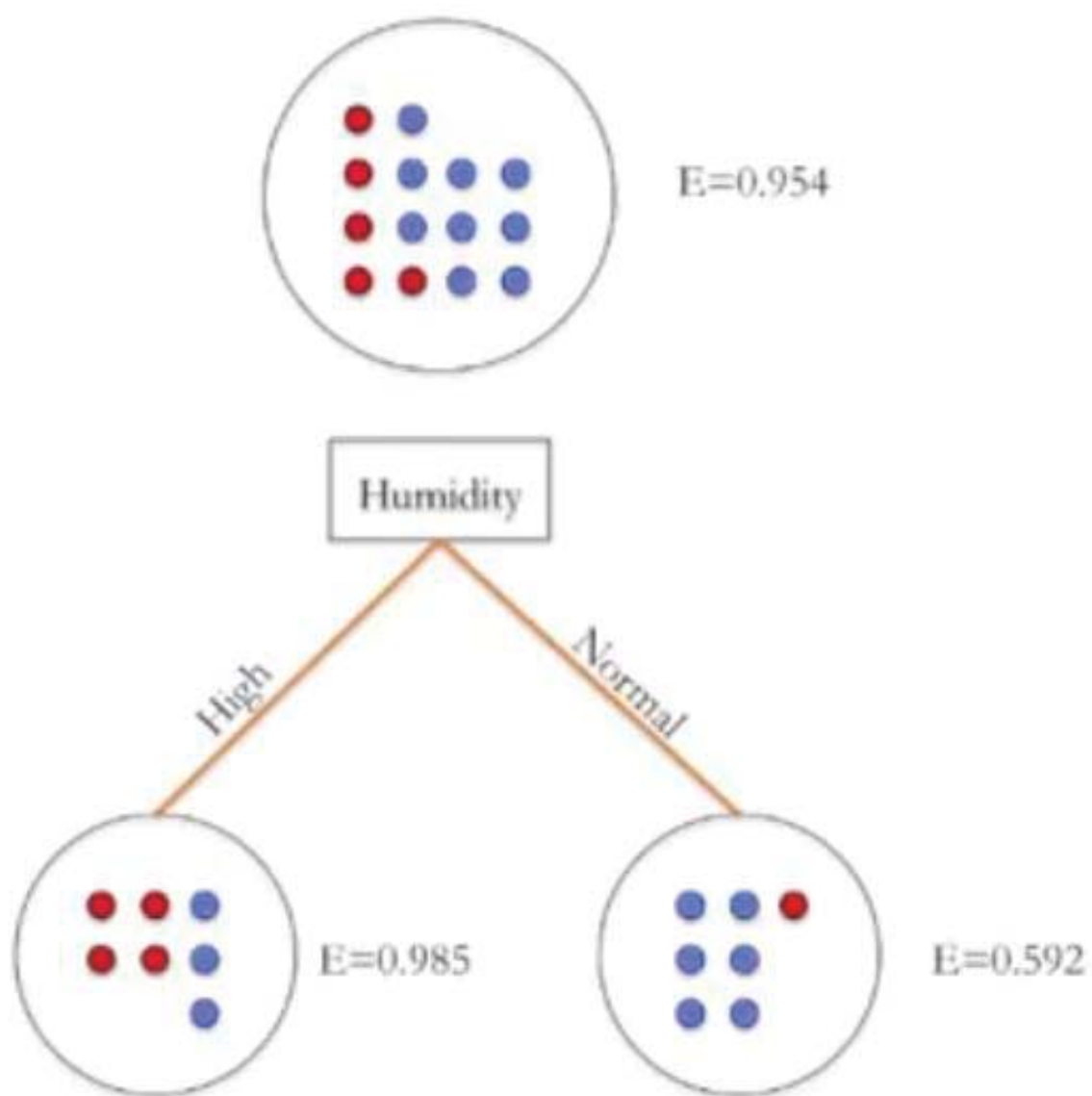




$$G(S, Wind) = 0.954 - \frac{8}{14}0.811 - \frac{6}{14}1$$

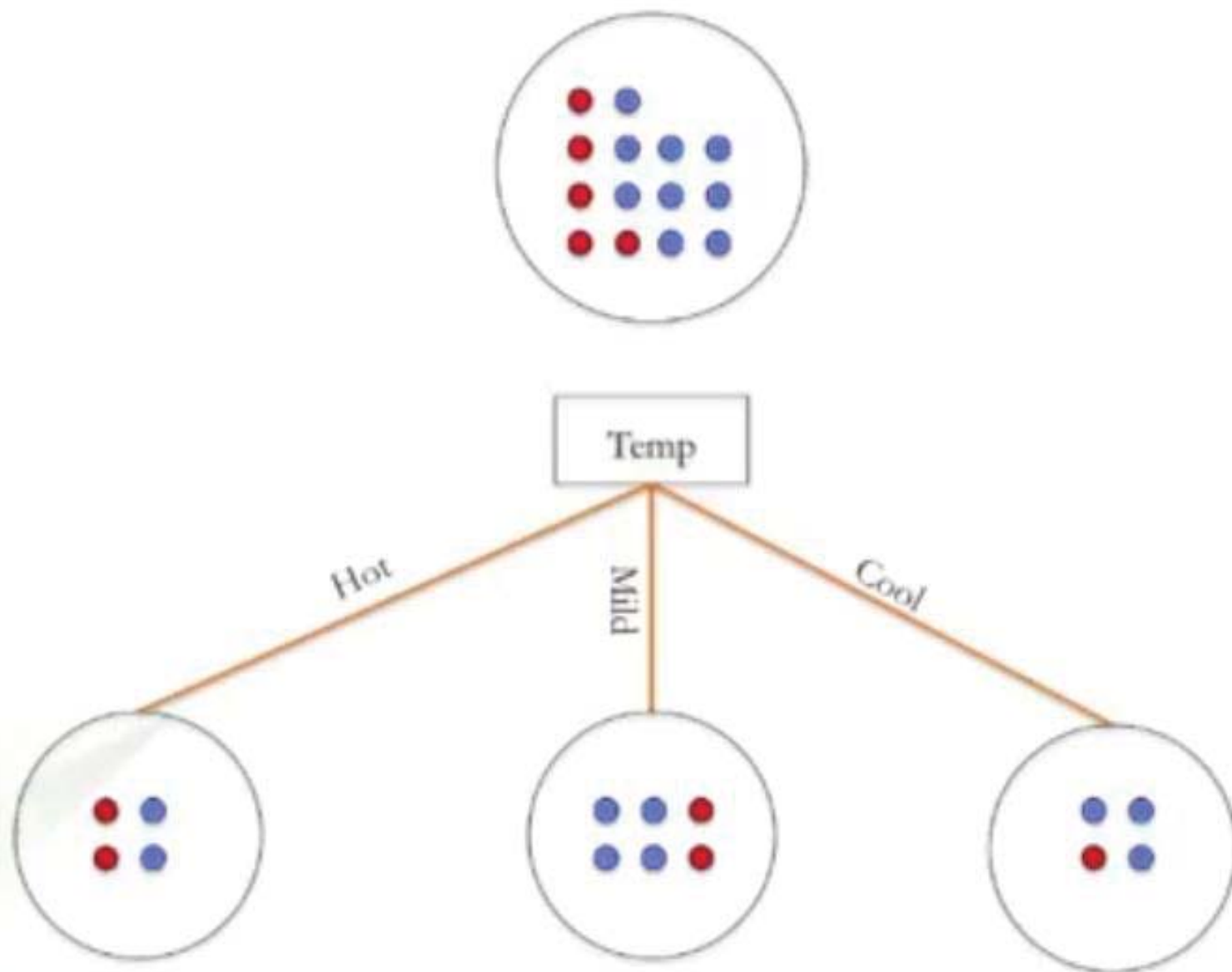
$$G(S, Wind) = 0.048$$





$$G(S, Humidity) = 0.954 - \frac{7}{14}0.985 - \frac{7}{14}0.592$$

$$G(S, Humidity) = 0.151$$





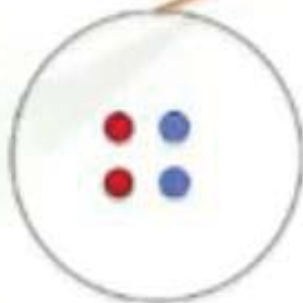
$E=0.954$

Temp

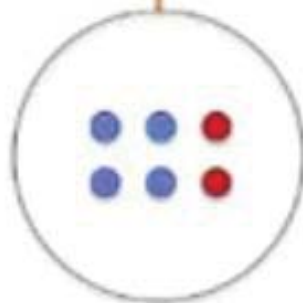
Hot

Mild

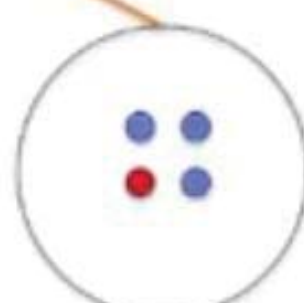
Cool



$E=1$



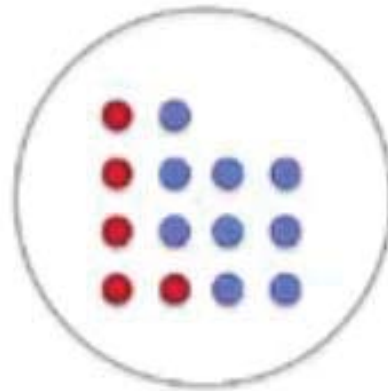
$E=0.92$



$E=0.81$

$$G(S, Temp) = 0.954 - \frac{4}{14}1 - \frac{6}{14}0.92 - \frac{4}{14}0.81$$

$$G(S, Temp) = 0.042$$

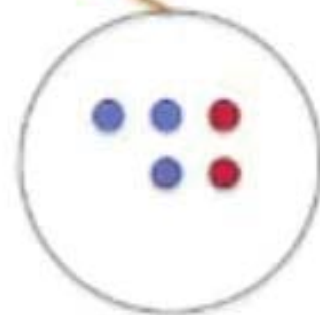
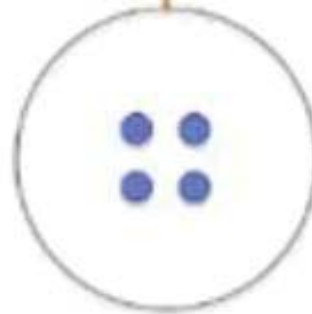
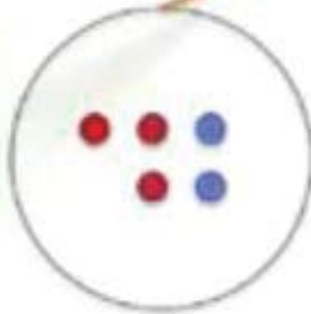


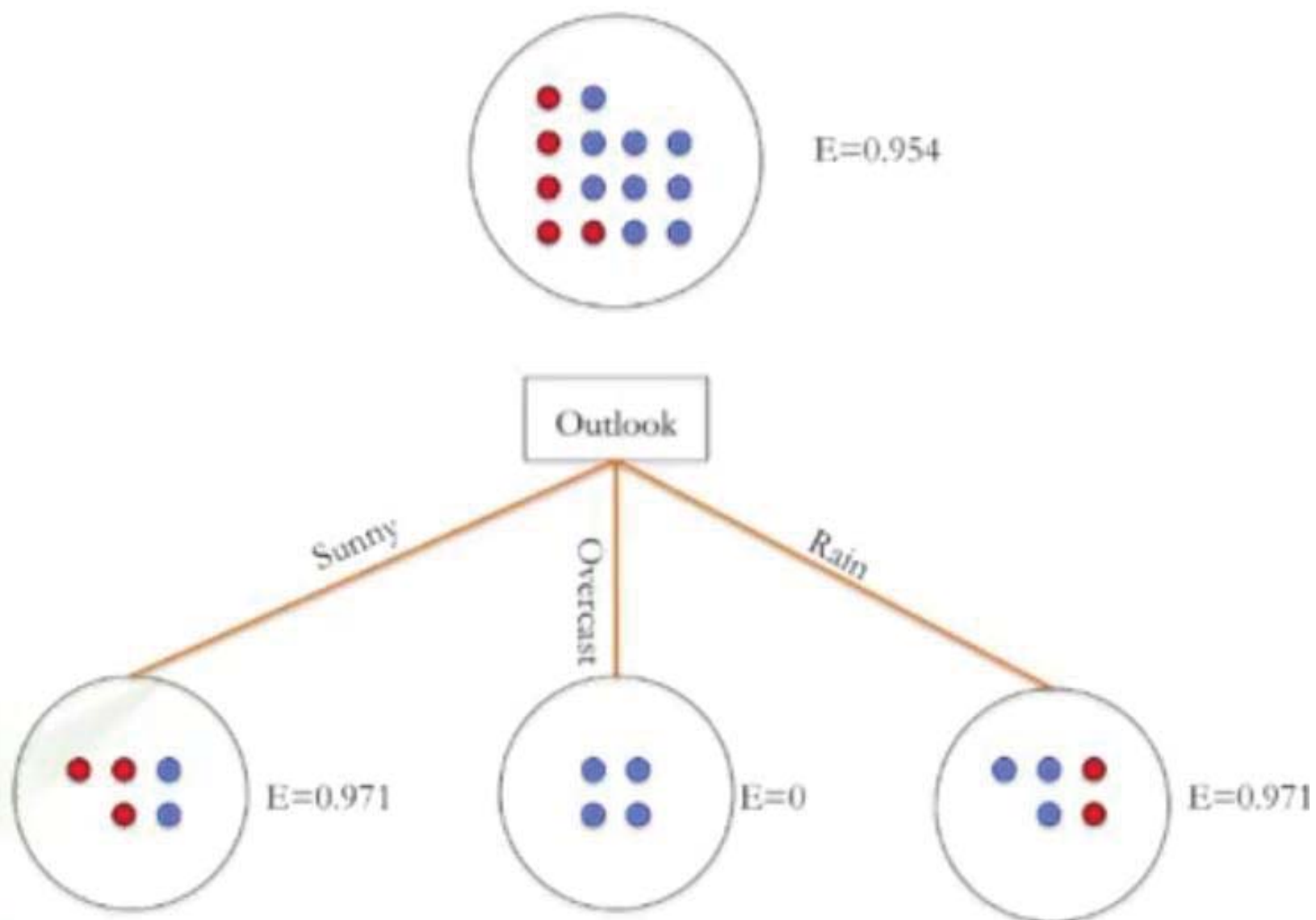
Outlook

Sunny

Overcast

Rain





$$G(S, Outlook) = 0.954 - \frac{5}{14}0.971 - \frac{4}{14}0 - \frac{5}{14}0.971$$

$$G(S, Outlook) = 0.247$$

