Define $W_i = \{$ winning the i-th game$\}$.

(a)

Use LOTP to obtain

$$\begin{aligned} P(W_1) &= P(W_1|\text{begginer})P(\text{begginer}) + P(W_1|\text{intermediate})P(\text{intermediate}) \\ &\quad + P(W_1|\text{master})P(\text{master}) \\ &= \frac{1}{3}(0.9 + 0.5 + 0.3) = \frac{17}{30} \end{aligned}$$

(b)

Similar as in (a) we get

$$\begin{aligned} P(W_1, W_2) &= P(W_1, W_2|\text{begginer})P(\text{begginer}) + P(W_1, W_2|\text{intermediate})P(\text{intermediate}) \\ &\quad + P(W_1, W_2|\text{master})P(\text{master}) \\ &= [W_1, W_2 \text{ conditionally independent}] \\ &= \frac{1}{3}(0.9^2 + 0.5^2 + 0.3^2) = \frac{23}{60} \end{aligned}$$

We finally get

$$P(W_2|W_1) = \frac{P(W_2, W_1)}{P(W_1)} = \frac{23}{34}$$

(c)

Independence in general means that outcome of one game does not affect the probability of winning in next game. Conditional independence means that outcome of one game verses some rank does not affect the probability of winning in next game which is also verses that rank. Conditional independence is more reasonable here because in general independence, winning the first game can give a information about the rank of a second opponent in some way.