

$${}_{00}h_6 = \frac{1}{2}h_4 + \frac{1}{2}h_5 = \frac{1}{8} + \frac{1}{4}h_6 + \frac{1}{4} + \frac{1}{2}h_6 = \frac{3}{8} + \frac{3}{4}h_6 \Rightarrow \frac{1}{4}h_6 = \frac{3}{8}$$

$$\therefore E[M] = \sum_i P(X_0=i) E[M | X_0=i] = \frac{1}{2} (0 + 2 + \frac{5}{2} + \frac{3}{2} + 1 + 2 + \frac{3}{2} + \frac{3}{2})$$

$$= \frac{15}{2} \Rightarrow h_6 = \frac{3}{2}$$