

1)
 values from first iteration
 $0a = 0.415165$
 $0b = 0.584835$
 $0h|a = 0.328456$
 $0t|a = 0.671544$
 $0h|b = 0.621777$
 $0t|b = 0.378223$

Second Iteration :

$d = 1 : p(Z = A, HH) = 0.415165 * 0.328456 * 0.328456 = 0.044789$
 $d = 1 : P(Z = B, HH) = 0.584835 * 0.621777 * 0.621777 = 0.226101$
 $d = 1 :-> \text{sum} = 0.27089$
 $d = 1 :-> y1(A) = 0.165340$
 $d = 1 :-> y1(B) = 0.834659$
 $d = 2 : p(Z = A, TT) = 0.415165 * 0.671544 * 0.671544 = 0.187228$
 $d = 2 : p(Z = B, TT) = 0.584835 * 0.378223 * 0.378223 = 0.083662$
 $d = 2 :-> \text{sum} = 0.27089$
 $d = 2 :-> y2(A) = 0.691158$
 $d = 2 :-> y2(B) = 0.308841$

$E(A) = y1(a) + y2(a) = 0.165340 + 0.691158 = 0.856498$
 $E(B) = y1(b) + y2(b) = 0.834659 + 0.308841 = 1.1435$

$E(A, H) = (0.165340 * 2 + 0.691158 * 0) = 0.33068$
 $E(A, T) = (0.165340 * 0 + 0.691158 * 2) = 1.382316$
 $E(B, H) = (0.834659 * 2 + 0.308841 * 0) = 1.669318$
 $E(B, T) = (0.834659 * 0 + 0.308841 * 2) = 0.617682$

$\text{est}(0a) = E(A)/2 = 0.856498 / 2 = 0.428249$
 $\text{est}(0b) = E(B)/2 = 1.1435 / 2 = 0.57175$
 $\text{est}(0h|a) = E(A, H) / \text{sumof}[E(A, X)] = 0.33068 / (0.33068 + 1.382316) = 0.193041$
 $\text{est}(0t|a) = E(A, T) / \text{sumof}[E(A, X)] = 1.382316 / (1.382316 + 0.33068) = 0.806958$
 $\text{est}(0h|b) = E(B, H) / \text{sumof}[E(B, X)] = 1.669318 / (1.669318 + 0.617682) = 0.729916$
 $\text{est}(0t|b) = E(B, T) / \text{sumof}[E(B, X)] = 0.617682 / (0.617682 + 1.669318) = 0.270084$