3.5

(a). the Pa of (x_i) is $x_i - 1$

$\therefore$ for $Pa(X_{t+1}) = X_t$.

According to Markov model in class.

we have

$$P_{ML} = P(X_{t+1} = x' \mid X_t = x)$$

$$= \frac{P(X_{t+1} = x',\ X_t = x)}{P(X_t = x)} = \frac{COUNT_t(x, x')}{COUNT_t(x)}$$

(b) $$P_{ML} = P(X_t = x \mid X_{t+1} = x')$$

$$= \frac{COUNT_t(x, x')}{COUNT_{t+1}(x')}$$