3. a)

- $\exists x (((\text{Murder}(x, M, L, T) \wedge (\forall y (\text{Murder}(y, M, L, T)$
$\rightarrow (y = x)))))$

- $\forall x (\text{At}(x, L, T) \rightarrow O(x))$

- $\text{At}(P, L, T)$

- $\exists x, \exists y (\text{Mo}(x) \wedge \text{Mo}(y) \wedge (x \neq y))$

- $\text{Murder}(x, M, L, T) \longleftrightarrow (\text{Mo}(x) \wedge O(x))$

b) $\text{Murder}(P, M, L, T) \longleftrightarrow (\text{Mo}(P) \wedge O(P))$

$\text{At}(P, L, T) \rightarrow O(P)$

$\boxed{\text{Mo}(P)?}$

However, even though Mrs. P had an opportunity to murder Mr. M, we do not know from the given information that Mrs. P had a motive to kill Mr. M. Therefore, we __cannot__ conclude that Mrs. P murdered Mr. M.