

Q1.

Mary-half-sister-Ann  $\leftarrow$  Ann-Father-Sam  $\wedge$  Ann-Mother-Sue  $\wedge$  Mary-Mother-Sue  $\wedge$  Mary-Father-Ed  $\wedge$   
Mary-is-female

Q2.

$\forall \text{Person}, \forall \text{HalfSister}, \exists X, \exists Y, \exists Z$

parentOf(X,Person)  $\wedge$  parentOf(Y,Person)  $\wedge$  parentOf(Y,HalfSister)  $\wedge$  parentOf(Z,HalfSister)  $\wedge$   $\neq(Y,Y) \wedge$   
not(parentOf(X,HalfSister))  $\wedge$  not(parentOf(Z,person))  $\wedge$  female(HalfSister)  $\wedge$  not( $\neq(X,Z)$ )  $\rightarrow$   
halfSisterOf(HalfSister,Person)