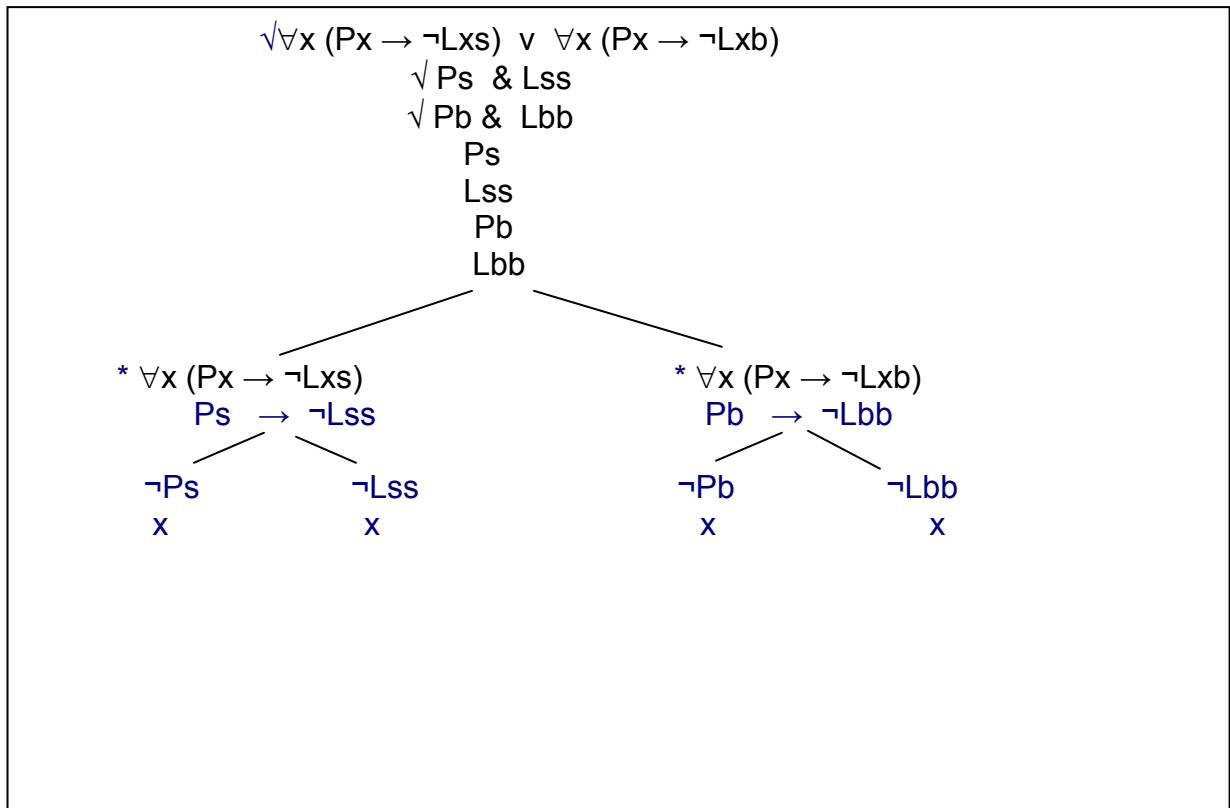


Instructions: Complete the following problems as directed. Type your name.
Type your answers. Staple or paper clip multiple pages. If you turn this in by e-mail, type the date and time you sent it on the hardcopy. 10 pts total.

1. Translate and prove with a truth tree. (3 points)

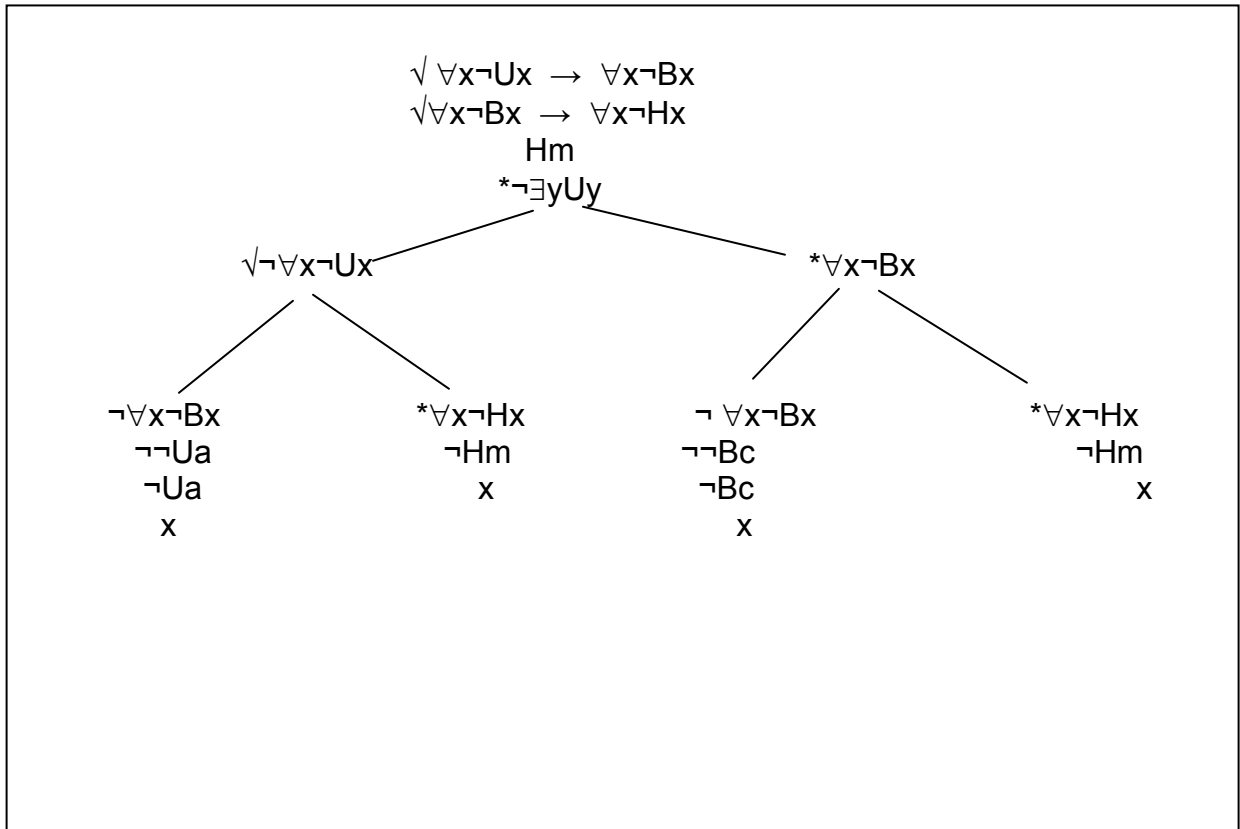
Either nobody loves Sarah or nobody loves Bob.
Sarah loves Sarah.
So Bob doesn't love Bob.

Note: The solution below employs the property of being a person, P.
Solutions that ignored this property were also accepted.



2. Translate and prove with a truth tree. (3 points)

If nothing is ugly, then nothing is beautiful
 If nothing is beautiful, then no person is happy.
 Marjorie is happy.
 So, something is ugly.



3. Translate and prove with a truth tree. (3 points)

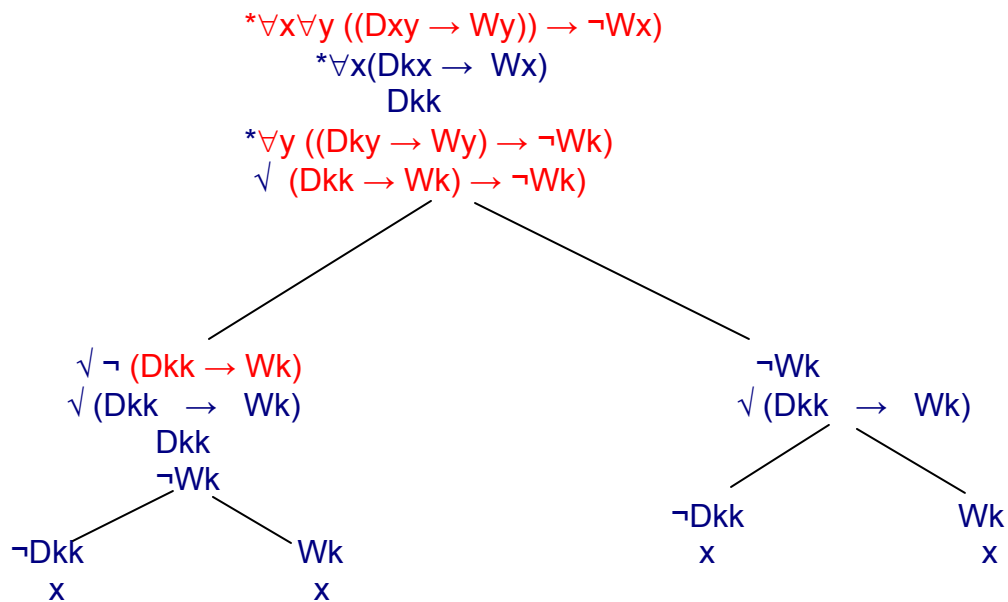
Anyone who only dates winners is a loser.

Kylee only dates winners.

Therefore, Kylee doesn't date herself.

(Note: ignore gender of "herself" here, translate 'loser' as 'not a winner')

(Note: the solution below does not employ the property of personhood.
Both ways are acceptable.)



4. Translate (1 point)

Anyone who forgets their mother's birthday is a cretin.

P = person

M = mother of

B = birthday of

F = forgets

C = cretin.

$$\forall x \forall y \forall z ((Px \ \& \ Py) \ \& \ (Myx \ \& \ Bzy) \ \& \ Fxz) \rightarrow Cx$$