10/11/24

Lab-7.

Knowledge Base:
1. Alice is the mother of Bob
2. Bob is the father of charlie
3. A father is a parent
4. A mother is a parent
5. All parents have children
6. If someone is a parent, their children are siblings
7. Alice is married to David.

Hypotheses:
"charlie is a sibling of Bob".

Entailment Process:
From 1 and 2:
Alice is the mother of Bob, and Bob is the father of charlie.

From 3 and 4:
father and mother are considered as a parent.

From 5:
All the parents have a children

From 6 & 7:
Since bob is a parent of the charlie & potenti
Alice, due to her marriage to David.

Conclusion:
charlie can be a sibling of Bob because
Bob is parent of charlie.

1) $M(x,y) \Leftrightarrow P(x)$

2) $F(x,y) \Leftrightarrow P(x)$.

3) $(P(x) \Leftrightarrow \exists y \, C(y,x)$

4) $\forall x,y,z \, ((P(z) \wedge C(x,z) \wedge C(y,z)) \rightarrow C(x,y))$.

5) $\quad S(x,y) \Leftrightarrow (S(y,x))$

Premise.

$\quad M(A,B)$

$\quad F(B,c)$.

$M(A,B) \quad , P(A)$

$F(B,c) \quad , P(B)$

$C(B,e)$.

$P \qquad Q$