Lab-7

Premise from 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.

Hypothesis:
  Charlie is a sibling of Bob

1. Alice is the mother of Bob, concludes that Alice is a parent

2. Bob is the father of Charlie, concludes that Bob is a parent.

8. 5th premise says all the parents have children stating that Alice has a child named Bob and Bob has a child named Charlie.

4. 6th premise states that if someone is a parent, their children are siblings which means that a pair of siblings have atleast one common parent.

5. It is given that Alice is married to David, proving that Bob is only the child of Alice.

6. ~~Since Charlie is the child of Bob, Bob and Charlie do not have a common parent, which does not make Bob and Charlie siblings.~~

Conclusion : The hypothesis ~~Bob~~ Charlie is a sibling of Bob" is not entailed by the knowledge base

Since Alice is the parent of Bob and Bob is the parent of Charlie, based on this transitivity Alice is the parent of Charlie, and since all children of a parent are siblings. Bob and Charlie are siblings.

Conclusion : The hypothesis "Charlie is a sibling of Bob" is entailed by the knowledge base.