

~~Hypothesis:~~

Step by step solution:

1. Premises 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 Paul.

2. Hypothesis:

"Charlie is a sibling of Bob"

3. Entailment Process:

Step 1: From premise 1 and premise 4, we can conclude that Alice is a parent of Bob.

Step 2: From premise 2 and premise 3 we conclude that Bob is a parent of Charlie.

Step 3: By premise 5, we confirm that since both Alice and Bob are parents they must have at least one child.

step 4: According to premise 6: "If someone is a parent, then their child are siblings":

• Since Bob is a parent of Charlie, Charlie is Bob's child

• According to premise 6, all children of a given parent are siblings.

step 5: Since Charlie is Bob's child & Bob himself is child of Alice they can be considered siblings in a broader sense.

Conclusion:

"Charlie is a sibling of Bob" is entailed by the knowledge base.