LAB-7

Knowledge Base

P₁ 1) Alice is the mother of bob =A.

P₅ 2) All parents have children.

P₂ 3) Bob is the father of Charlie =B

P₆ 4) If someone is a parent, their children are siblings

P₃ 5) A father is a parent =C,

P₇ 6) Alice is married to David.

P₄ 7) A Mother is a parent =D

Hypothesis

D) Charlie is a sibling of bob = Q

Premises - Logical form

	From knowledge base.
1. P₁ : A →B	1. A →B
2. P₂ : C→D	2. B →C
3. B₃ : F→P	3. F →P
4. P₄ : M→P	4. M →P
5. P₅ : P→C	5. P →S.
6. P₆ : P →(S)	6. A∧B → Q
7. P₇ : A →D	

Premise1: A →B (if alice is mother of bob and Bob is father of Charlie).

Premise 7: A∧B →S (if Alice & Bob are parents, their children are siblings.

Entailment

1. if A (Alice is mother of bob) is true.
   → B must be true (since A → B)

2. If B is true.
   → C must be true (F → P)
   → M must be true (M → P)

3. If both Alice and Bob are parents
   (M & F are true)
   → S must be true

4. Since S is true.
   → Q is true

Conclusion:
The hypothesis "Charlie is a sibling of bob"
is true, therefore the hypothesis is
entailed by the knowledge base.

12/11/24