Input

prof(adam).
student(brian).
student(michael).
publish(adam,michael).
Adcom(adam,michael)
Adcom(adam,brian)
?Advise(X,Y):-prof(X),student(Y),publish(X,Y)
?Adcom(X,Y):-prof(X),student(Y).
?publish(X,Y):-Advise(X,Y)
trace=1

Queries

?Advise(adam,michael)?
?Advise(adam,brian)?
?Advise(adam,Q)?

In following two pages

1) Clauses
2) CNF Conversion
3) Predicate Explanation
4) Resolution proof for Adam is Michael's advisor

Terms: Prof (adam)
Student (brian)
Student (michael)
publish (adam, michael)
Advcom (adam, michael)
Advcom (adam, brian)

$\forall x,y$ Advise $(X,Y) \rightarrow$ publish $(X,Y) \wedge$ prof $(X) \wedge$ student (Y)

$\forall x,y$ Advcom $(X,Y) \rightarrow$ prof $(X) \wedge$ student (Y)

$\forall x,y.$ publish $(X,Y) \rightarrow$ Advise (X,Y)

Predicates

Prof = Professor
Student = student
publish (X,Y) = X publishes with Y
Advcom (X,Y) = X is in the advisory committee of Y
Advise (X,Y) = X advises Y & X is advised by Y

Conversion into CNF

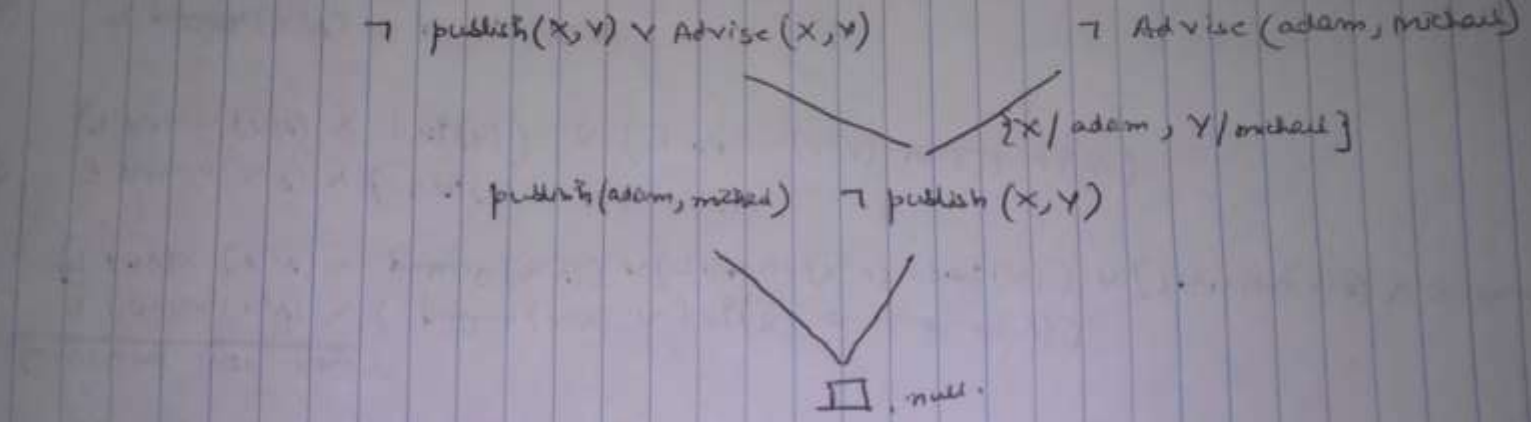
① $\neg$ Advise $(X,Y) \vee$ (publish $(X,Y) \wedge$ prof $(X) \wedge$ student (Y))
$(\neg$ Advise $(X,Y) \vee$ publish $(X,Y)) \wedge (\neg$ Advise $(X,Y) \vee$ prof $(X)) \wedge (\neg$ Advise $(X,Y) \vee$ student $(Y))$

② $\neg$ Advcom $(X,Y) \vee$ (prof $(X) \wedge$ student (X))
$(\neg$ Advcom $(X,Y) \vee$ prof $(X)) \wedge (\neg$ Advcom $(X,Y) \vee$ student $(Y))$

③ $\neg$ publish $(X,Y) \vee$ Advise (X,Y)

Resolution

we will add ¬ Advise (adam, michael) in the database and start resolving.



Also, through query resolution in prolog program :-