**%initial state:**

**% monkey is at door,**

**% key is in the middle of room,**

**% banana is at window locked in a box,**

**% Monkey does not have the banana.**

**%canget(state(atdoor,locked,hasnot,hasnot)).**

**%canget(state(S1, S2, S3, S4)).**

**%S1-monkey location-atdoor / onfloor / atwindow / middle**

**%S2-box is locked or not: locked/unlocked**

**%S3-monkey has the key or not has,hasnot**

**%S4-monkey has the banana or not-has,hasnot**

**%legal actions**

move(state(atwindow,unlocked,has,hasnot), % before move

grasp, % grasp banana

state(atwindow,unlocked,has,has)). % after move

move(state(atwindow,locked,has,H),

unlock, % unlock box

state(atwindow,unlocked,has,H)).

move(state(middle,locked,hasnot,H),

get\_key, % get the key

state(middle,locked,has,H)).

move(state(P1,locked,\_,\_),

walk(P1,P2), % walk form P1 to P2

state(P2,locked,\_,\_)).

%canget(State): monkey can get banana in state

canget(state(\_,\_,\_,has)). % Monkey already has it, goal state

canget(State1):- %do some work to get it

move(State1,Move,State2), %do something

canget(State2). %Get it now

**child\_of(mary, steve).**

**child\_of(mary,anne).**

**child\_of(alice,anne).**

**child\_of(alice,steve).**

**child\_of(jane,steve).**

**child\_of(leslie,steve).**

**child\_of(steve,ema).**

**child\_of(sally,ema).**

**child\_of(anne,nani).**

**child\_of(anne,john).**

**child\_of(james,john).**

**female(mary).**

**female(alice).**

**female(jane).**

**female(nani).**

**female(ema).**

**child\_of(ram, steve).**

**child\_of(ram,anne).**

**child\_of(shyam,anne).**

**child\_of(shyam,steve).**

**child\_of(hari,ram).**

**female(anne).**

**sisters(Person1,Person2) :-**

**child\_of(Person1,Parent1),child\_of(Person1,Parent2),**

**child\_of(Person2,Parent1),child\_of(Person2,Parent2),**

**not(Parent1 = Parent2),**

**female(Person1),female(Person2),**

**not(Person1 = Person2).**

brothers(Person1,Person2) :-

child\_of(Person1,Parent1),child\_of(Person1,Parent2),

child\_of(Person2,Parent1),child\_of(Person2,Parent2),

not(Parent1 = Parent2),

not(female(Person1)),not(female(Person2)),

not(Person1 = Person2).

grandmother(X,Y):-

child\_of(Y,Z),child\_of(Z,X),

female(X).

uncle(X,Y):-

brothers(X,Z),child\_of(Y,Z).

husband(X,Y) :-

child\_of(Z,X),

child\_of(Z,Y),

female(Y),

not(female(X)).

brother\_in\_law(X,Z):-

child\_of(Y,W),child\_of(Y,Z),

female(W),

not(female(Z)),

child\_of(X,U),child\_of(W,U),

not(female(X)),

not(female(Z)).

brother\_in\_law(X,Z):-

child\_of(Y,Z),child\_of(Y,W),

female(Z),

child\_of(W,U),child\_of(X,U),

not(female(X)).