In [16]:

```
pip install pytholog
```

```
Requirement already satisfied: pytholog in c:\anaconda\lib\site-packages (2.4.1)
Requirement already satisfied: more-itertools in c:\anaconda\lib\site-packages (from pyt
holog) (10.1.0)
Note: you may need to restart the kernel to use updated packages.
```

In [17]:

```
import pytholog as pl
```

In [18]:

```
pip install sympy
```

```
Requirement already satisfied: sympy in c:\anaconda\lib\site-packages (1.12)
Requirement already satisfied: mpmath>=0.19 in c:\anaconda\lib\site-packages (from symp
y) (1.3.0)
Note: you may need to restart the kernel to use updated packages.
```

In [19]:

```
from sympy import *
from sympy.logic.inference import *
```

SET-A

In [21]:

```
R = Symbol("rain") # It is raining.
H = Symbol("hagrid") #Harry Visited Hagrid
D = Symbol("dumbledore") #Harry Visited Dumbledore

knowledge = And(Implies(Not(R), H),
                Or(H, D),
                Not(And(H, D)),
                D)

models = satisfiable(knowledge, all_models = True)

for model in models:
    print(model)

#Checking whether “harry visited hagrid”
if model[H]:
    print("Harry Visited Hagrid")
else:
    print("Harry didn't visit Hagrid")

#Checking whether “it rained today”
if model[R]:
    print("It rained today")
else:
    print("It didn't rain today")
```

```
{rain: True, hagrid: False, dumbledore: True}
Harry didn't visit Hagrid
It rained today
```

SET-B

In [23]:

```
S = Symbol("sunny") # It's sunny this afternoon
C = Symbol("colder") # It's colder than yesterday
W = Symbol("swimming") # We will go swimming
T = Symbol("canoe") # We will take a Canoe Trip
H = Symbol("sunset") # We will be home by sunset

knowledge = And(And(Not(S), C),
                Implies(W, S),
                Implies(Not(W), T),
                Implies(T, H))

models = satisfiable(knowledge, all_models = True)

for model in models:
    print(model)

#Checking whether they will be home by sunset
if model[H]:
    print("They will be home by sunset")
else:
    print("They won't be home by sunset")
```

```
{sunset: True, canoe: True, colder: True, sunny: False, swimming: False}
They will be home by sunset
```