29-12-23

```
from sympy import symbols, And, Not, Implies, satisfiable
def create - KB():
    p = symbols('p')
    q = symbols('q')
    r = symbols('r')
    KB = And ( Implies (p, q), Implies (q, r), Not(r))
    return KB

def query-entails (KB, query):
    en = satisfiable (And ( KB, Not (query)))
                           (KB ∧ ¬ query)
    return not en

if name__ == "_main_" :
    kb = create_KB()
    query = symbols('p')
    result = query-entails (kb, query)

print ("KB :", kb)
print ('Query:", query)
print ("result)
```

| a | | | b | c | d | e | |
					a∧b∧c	¬p	d∧e
p	q	r	p→q	q→r	¬r			
						F	F	F
T	T	T	T	T	F	F	F	F
T	T	F	T	F	T	F	F	F
T	T	F	F	T	F	F	F	F
T	F	T	F	T	F	F	T	F
T	F	F	F	T	T	F	T	F
F	T	T	T	T	F	F	T	F
F	T	T	T	F	T	F	T	F
F	F	T	T	T	F	T	T.	T
F	F	F	T	T	T	T		

∴ satisfiable

∴ ~~Not En~~   KB does not entail α.

α ⊨ β ~~a~~ iff in every model where α is true, β is true·

α ⊨ β if (α ∧ ¬β) is ~~a~~ unsatisfiable.

KB:
¬r ∧ (p→q) ∧ (q→r)

query : p.

~~If A comes to~~
1) Jim rides a bike to school every
                                    morning
2) Jim is good at riding bikes

(1) does not entail (2).

Output:

KB : ~r & (Implies (p, q) & Implies (q, r))

query: P

Result: False.

```
PS C:\Users\neha2\OneDrive\Documents\NehaKamath_1BM21CS113_AILab> python
Knowledge Base: ~r & (Implies(p, q)) & (Implies(q, r))
Query: p
Query entails Knowledge Base: False
```