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)))
    return not en                    (KB ∧ ¬ query)

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

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

p	q	r	$p \to q$	$q \to r$	$\neg r$	$a \land b \land c$	$\neg p$	$d \land e$
			a	b	c	d	e	
T	T	T	T	T	F	F	F	F
T	T	F	T	F	T	F	F	F
T	F	T	F	T	F	F	F	F
T	F	F	F	F	T	F	F	F
F	T	T	T	T	F	F	T	F
F	T	F	T	F	T	F	T	F
F	F	T	T	T	F	F	T	F
F	F	F	T	T	T	T	T	T

∴ satisfiable

∴ ~~Not En~~ KB does not entail α.

$\alpha \models \beta$ iff in every model where α is true, β is true.

$\alpha \models \beta$ if $(\alpha \land \neg \beta)$ is unsatisfiable.

KB: $\neg r \land (p \to q) \land (q \to r)$

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
```