All cats are felon

No felon is vegetarian

———————

No cat is vegetarian

;;;;;;;;;;;;;;;;;;;;;;

FORMALIZATION

forall(x) C(x) => F(x)

not(exist(x)) C(x)^ V(x)

not(exist(x)) C(x)^ V(x)

;;;;;;;;;;;;;;;;;;;;;;

NEGATE THE THESIS

forall(x) C(x) => F(x)

not(exist(x)) C(x)^ V(x)

exist(x) C(x)^ V(x)

;;;;;;;;;;;;;;;;;;;;;;

CNF

forall(x) not(C(x)) v F(x)

forall(x) not(C(x)) v not(V(x))

exist(x) C(x) ^ V(x)

;;;;;;;;;;;;;;;;;;;;;

SKOLEMISE

forall(x) not(C(x)) v F(x)

forall(x) not(C(x)) v not(V(x))

C(a)

V(a)

;;;;;;;;;;;;;;;;;;;

INITIALISE

1. not(C(a)) v F(a)

2. not(C(a) v not(V(a))

3. C(a)

4. V(a)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

RESOLUTION

Apply resolution between [1] and [3]

[1] [3]

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F(a)[5]

Apply resolution between [2] and [3]

[2] [3]

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not(V(a))[6]

Apply resolution between [6] and [4]

[6] [4]

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empty box empty set of clause, so is UNSAT

Since it is unsat and the conclusion was negated than the syllogism is TRUE

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CDCL

( C(a)[3], V(a)[4] | C0 | \* )

Propagate

( C(a)[3], V(a)[4], F(a)[1] | C0 | \* )

Conflict

( C(a)[3], V(a)[4], F(a)[1] | C0 | [2] )

Since I go to conflict without decided literal it is UNSAT

Since it is unsat and the conclusion was negated at the beginning than the syllogism is TRUE