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Assignment

1. step 1: Eliminate →

$$\forall x [\neg \exists z \neg Animal(z) \vee Kills(x,z)] \vee [\forall y \neg loves(y,x)]$$

step 2: $\neg$ inward

$$\forall x [\forall z Animal(z) \wedge \neg Kills(x,z)] \vee [\forall y \neg loves(y,x)]$$

step 3:- change quantifiers

$$\forall x [\forall z Animal(z) \wedge \neg Kills(x,z)] \vee [\forall z \neg loves(z,x)]$$

step 4: Skolemize

$$\forall x [Animal(F(x)) \wedge \neg Kills(x, F(x))] \vee \neg loves(G(x), x)$$

step 5: Drop Universal Quantifier

$$[Animal(F(x)) \wedge \neg Kills(x, F(x))] \vee \neg loves(G(x), z)$$

step 6: Distribute

$$[Animal(F(x)) \vee \neg loves(G(x), x)] \wedge [Animal(F(x)) \vee \neg love(G(x), x)]$$

2. Rules.

- cold and precipitation → snow
  - ¬ cold ∨ → precipitation ∨ snow
- January → cold
  - ¬ January ∨ cold
- clouds → precipitation
  - ¬ clouds ∨ precipitation.
- facts.
  - January, clouds
- Prove
  - snow

¬ Snow ¬ Cold ∨ ¬ precipitation ∨ snow

¬ cold ∨ ¬ precipitation ¬ Jan ∨ cold

¬ January ∨ ¬ precipitation ¬ clouds ∨ precip".

January ¬ January ∨ ¬ clouds

¬ clouds clouds

□ empty.