

Lab 9

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To prove: Robert is a criminal

As per the law, it is a crime for an American to sell weapons to hostile nations. Country A, an enemy of America, has some missiles and all the missiles were sold to it by Robert, who is an American citizen.

p , q , and x are variables

$American(p) \wedge Weapon(q) \wedge sells(p, q, x) \wedge Hostile(x) \Rightarrow Criminal(p)$

Country A has missiles

$\exists x Owns(A, x) \wedge Missile(x)$

x is an object (here missile) owned by country A

considering a constant T_1

$Owns(A, T_1)$

$Missile(T_1)$

$\forall x Missile(x) \wedge Owns(A, x) \Rightarrow sells(Robert, x, A)$

All missiles are sold to A by Robert

which means the missile T_1 was also sold to A by Robert

$\text{Missile}(x) \Rightarrow \text{Weapon}(x)$

If x is a missile, it implies x is also a weapon

$\forall x \text{ Enemy}(x, \text{Americans}) \Rightarrow \text{hostile}(x)$

if x is an enemy to America, it implies x is hostile to America.

If P is robot

then American (Robot)

Robot is an American

and A is an enemy of America

$\text{Enemy}(A, \text{America}) \Rightarrow \text{Hostile}$

$\therefore \text{American}(\text{Robot}) \wedge \text{Weapon}(T) \wedge \text{Hostile}(\text{Robot}, T)$
 $\wedge \text{Hostile}(T)$

$\therefore \text{Criminal}(\text{Robot})$

Forward Chaining

