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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 ~~states~~ 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, r are variables

America cannot sell weapons to hostile nations.

$$\text{America}(p) \wedge \text{weapon}(q) \wedge \text{Sells}(p, q, r) \wedge \text{Hostile}(r) \Rightarrow \text{Criminal}(p)$$

Country A has missiles.

$$\exists x \text{ Owns}(A, x) \wedge \text{Missile}(x)$$

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

considering a constant T_1

$$\text{Owns}(A, T_1)$$

$$\text{Missile}(T_1)$$

$$\forall x \text{ Missile}(x) \wedge \text{Owns}(A, x) \Rightarrow \text{Sells}(\text{Robert}, x, A)$$

All missiles are sold to A by Robert

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

Missile (x) \Rightarrow Weapon (x)

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

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

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

if p is Robert

Then American (Robert)

Robert is an American

and A is an enemy of America

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

$\therefore \text{American}(\text{Robert}) \wedge \text{Weapon}(T) \wedge \text{Sells}(\text{Robert}, T, A) \wedge \text{Hostile}(A)$

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

Forward Chaining

