

t63\_rewrite1 (TM-  
Pow1eEGHU88kYbj6kNaqDCZfEFu6twyjM)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $m2\_rewrite1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r12\_rewrite1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r5\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r6\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v10\_rewrite1 : \iota \Rightarrow o$  be given. Let  $v8\_rewrite1 : \iota \Rightarrow o$  be given. Let  $v7\_rewrite1 : \iota \Rightarrow o$  be given. Let  $v9\_rewrite1 : \iota \Rightarrow o$  be given. Let  $v3\_rewrite1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.((r5\_rewrite1 X0 X1 X2) \vee (r6\_rewrite1 X0 X1 X2)) \Rightarrow (r2\_rewrite1 X0 X1 X2)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(m2\_rewrite1 X1 X0) \Rightarrow ((v1\_relat\_1 X1) \wedge (v10\_rewrite1 X1))) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge (v10\_rewrite1 X1)) \Rightarrow ((m2\_rewrite1 X1 X0) \Leftrightarrow (\forall X2.\forall X3.(r2\_rewrite1 X0 X2 X3) \Leftrightarrow (r5\_rewrite1 X1 X2 X3)))) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(v1\_relat\_1 X1) \Rightarrow ((r12\_rewrite1 X0 X1) \Leftrightarrow (\forall X2.\forall X3.(r2\_rewrite1 X0 X2 X3) \Leftrightarrow (r2\_rewrite1 X1 X2 X3)))) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v8\_rewrite1 X0) \Leftrightarrow (\forall X1.\forall X2.(r2\_rewrite1 X0 X1 X2) \Rightarrow (r5\_rewrite1 X0 X1 X2))) \quad (5)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v7\_rewrite1 X0)) \Rightarrow ((v1\_relat\_1 X0) \wedge ((v8\_rewrite1 X0) \wedge (v9\_rewrite1 X0))) \quad (6)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v10\_rewrite1 X0)) \Rightarrow ((v1\_relat\_1 X0) \wedge ((v3\_rewrite1 X0) \wedge (v7\_rewrite1 X0))) \quad (7)$$

**Theorem 1**

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(m2\_rewrite1 X1 X0) \Rightarrow (r12\_rewrite1 X0 X1))$$