

t44\_rewrite1 (TM-  
REc1jF3g9xMrRowpE6RAr8C6XBVjs2mAT)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $r7\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r5\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.(k4\_tarski X1 X2 \in X0) \Rightarrow (r1\_rewrite1 X0 X1 X2)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.r1\_rewrite1 X0 X1 X1) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.(r7\_rewrite1 X0 X1 X2) \Leftrightarrow (\exists X3.((k4\_tarski X1 X3 \in X0) \vee (X1 = X3)) \wedge ((k4\_tarski X2 X3 \in X0) \vee (X2 = X3)))) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.(r5\_rewrite1 X0 X1 X2) \Leftrightarrow (\exists X3.(r1\_rewrite1 X0 X1 X3) \wedge (r1\_rewrite1 X0 X2 X3))) \quad (4)$$

**Theorem 1**

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.\forall X2.(r7\_rewrite1 X0 X1 X2) \Rightarrow (r5\_rewrite1 X0 X1 X2))$$