

t37_rewrite1 (TM-
MerS1L4ST9kCfqGa8xNbWMNcZXZMpEVm4)

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Let $v1_relat_1 : \iota \Rightarrow o$ 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 $r1_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.\forall X3. \\ & ((r2_rewrite1 X0 X1 X2) \wedge (r2_rewrite1 X0 X2 X3)) \Rightarrow (r2_rewrite1 X0 \\ & \quad X1 X3)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r1_rewrite1 \\ & X0 X1 X2) \Rightarrow ((r2_rewrite1 X0 X1 X2) \wedge (r2_rewrite1 X0 X2 X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r6_rewrite1 \\ & X0 X1 X2) \Leftrightarrow (\exists X3.(r1_rewrite1 X0 X3 X1) \wedge (r1_rewrite1 X0 X3 \\ & \quad X2))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r5_rewrite1 \\ & X0 X1 X2) \Leftrightarrow (\exists X3.(r1_rewrite1 X0 X1 X3) \wedge (r1_rewrite1 X0 X2 \\ & \quad X3))) \end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.((r5_rewrite1 \\ & X0 X1 X2) \vee (r6_rewrite1 X0 X1 X2)) \Rightarrow (r2_rewrite1 X0 X1 X2)) \end{aligned}$$