

t57_rewrite1 (TMWhyW- GrXZN2nddZ3LBGP5dvLMnN1zQZg13)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v7_rewrite1 : \iota \Rightarrow o$ be given. Let $v9_rewrite1 : \iota \Rightarrow o$ be given. Let $k18_finseq_1 : \iota \Rightarrow \iota$ be given. Let $r1_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r1_rewrite1 \\ & X0 X1 X2) \Rightarrow ((r5_rewrite1 X0 X1 X2) \wedge ((r6_rewrite1 X0 X1 X2) \wedge ((r5_rewrite1 \\ & X0 X2 X1) \wedge (r6_rewrite1 X0 X2 X1)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r1_rewrite1 \\ & X0 X1 X2) \Leftrightarrow (r1_rewrite1 (k18_finseq_1 X0) X1 X2)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r1_rewrite1 \\ & X0 X1 X2) \Leftrightarrow ((X1 = X2) \vee (k4_tarski X1 X2 \in k18_finseq_1 X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0) \Rightarrow (v1_relat_1 (k18_finseq_1 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r6_rewrite1 \\ & X0 X1 X2) \Leftrightarrow (\exists X3.(r1_rewrite1 X0 X3 X1) \wedge (r1_rewrite1 X0 X3 \\ & X2))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_relat_1 X0) \Rightarrow (\forall X1.\forall X2.(r5_rewrite1 \\ & X0 X1 X2) \Leftrightarrow (\exists X3.(r1_rewrite1 X0 X1 X3) \wedge (r1_rewrite1 X0 X2 \\ & X3))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_relat_1 X0) \Rightarrow ((v9_rewrite1 X0) \Leftrightarrow (\forall X1.\forall X2. \\ \forall X3.((k4_tarski X1 X2 \in X0) \wedge (k4_tarski X1 X3 \in X0)) \Rightarrow (r5_rewrite1 \\ X0 X2 X3))) \end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_relat_1 X0) \Rightarrow ((v7_rewrite1 X0) \Leftrightarrow (\forall X1.\forall X2. \\ (r6_rewrite1 X0 X1 X2) \Rightarrow (r5_rewrite1 X0 X1 X2))) \end{aligned} \tag{8}$$

Theorem 1

$$\forall X0.(v1_relat_1 X0) \Rightarrow ((v7_rewrite1 X0) \Leftrightarrow (v9_rewrite1 (\\ k18_finseq_1 X0)))$$