

t27_fsm_3 (TMYd- hZxyPd5bKhs2qRhH63MckmgktFtCEHU)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_rewrite3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_catalan2 : \iota \Rightarrow \iota$ be given. Let $k9_flang_1 : \iota \Rightarrow \iota$ be given. Let $k4_flang_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_flang_1 : \iota \Rightarrow \iota$ be given. Let $r3_rewrite3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_flang_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_rewrite3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (k8_afinsq_1 X2)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& (k8_afinsq_1 X2)) \Rightarrow (\forall X5.(m1_subset_1 X5 (k8_afinsq_1 X2)) \Rightarrow \\
& (\forall X6.((\neg v2_struct_0 X6) \wedge (l1_rewrite3 X6 (k4_subset_1 \\
& (k3_catalan2 X2) (k9_flang_1 X2) (k4_flang_1 X2 (k2_flang_1 X2)))) \Rightarrow \\
& ((r1_rewrite1 (k1_rewrite3 X2 (k4_subset_1 (k3_catalan2 X2) (\\
& k9_flang_1 X2) (k4_flang_1 X2 (k2_flang_1 X2))) X6) (k4_tarski \\
& X0 (k1_flang_1 X2 X3 X4)) (k4_tarski X1 (k1_flang_1 X2 X5 X4))) \Rightarrow (\\
& r1_rewrite1 (k1_rewrite3 X2 (k4_subset_1 (k3_catalan2 X2) (k9_flang_1 \\
& X2) (k4_flang_1 X2 (k2_flang_1 X2))) X6) (k4_tarski X0 X3) (k4_tarski \\
& X1 X5)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.k3_catalan2 X0 = k8_afinsq_1 X0 \tag{2}$$

Assume the following.

$$\forall X0.m1_subset_1 (k9_flang_1 X0) (k1_zfmisc_1 (k3_catalan2 X0)) \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 \\
& X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (m1_subset_1 (k4_subset_1 \\
& X0 X1 X2) (k1_zfmisc_1 X0))
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k3_catalan2 X0))\Rightarrow(m1_subset_1 (k4_flang_1 X0 X1) (k1_zfmisc_1 (k3_catalan2 X0))) \quad (5)$$

Assume the following.

$$\forall X0.m1_subset_1 (k2_flang_1 X0) (k3_catalan2 X0) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (k8_afinsq_1 X0)))\Rightarrow(\forall X2.((\neg v2_struct_0 X2)\wedge(l1_rewrite3 \\ X2 X1))\Rightarrow(\forall X3.\forall X4.\forall X5.\forall X6.(r3_rewrite3 \\ X0 X1 X2 X3 X4 X5 X6)\Leftrightarrow(r1_rewrite1 (k1_rewrite3 X0 X1 X2) (k4_tarski \\ X3 X4) (k4_tarski X5 X6)))))) \end{aligned} \quad (7)$$

Theorem 1

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(\neg v1_xboole_0 X2)\Rightarrow(\forall X3. \\ (m1_subset_1 X3 (k8_afinsq_1 X2))\Rightarrow(\forall X4.(m1_subset_1 X4 \\ (k8_afinsq_1 X2))\Rightarrow(\forall X5.(m1_subset_1 X5 (k8_afinsq_1 X2))\Rightarrow \\ (\forall X6.((\neg v2_struct_0 X6)\wedge(l1_rewrite3 X6 (k4_subset_1 \\ (k3_catalan2 X2) (k9_flang_1 X2) (k4_flang_1 X2 (k2_flang_1 X2))))))\Rightarrow \\ ((r3_rewrite3 X2 (k4_subset_1 (k3_catalan2 X2) (k9_flang_1 X2) \\ (k4_flang_1 X2 (k2_flang_1 X2))) X6 X0 (k1_flang_1 X2 X3 X4) X1 (k1_flang_1 \\ X2 X5 X4))\Rightarrow(r3_rewrite3 X2 (k4_subset_1 (k3_catalan2 X2) (k9_flang_1 \\ X2) (k4_flang_1 X2 (k2_flang_1 X2))) X6 X0 X3 X1 X5)))))) \end{aligned}$$