

t129_zmodul01

(TMTv7cbyYLRzXW2oBEzJKebqZWKDr12W1kf)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v2_zmodul01 : \iota \Rightarrow o$ be given. Let $v3_zmodul01 : \iota \Rightarrow o$ be given. Let $v4_zmodul01 : \iota \Rightarrow o$ be given. Let $v5_zmodul01 : \iota \Rightarrow o$ be given. Let $l1_zmodul01 : \iota \Rightarrow o$ be given. Let $r1_zmodul01 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_zmodul01 : \iota \Rightarrow \iota$ be given. Let $k4_zmodul01 : \iota \Rightarrow \iota$ be given. Let $k7_zmodul01 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_zmodul01 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_zmodul01 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1_zmodul01 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u1_zmodul01 : \iota \Rightarrow \iota$ be given. Let $v1_zmodul01 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_zmodul01 X0) \wedge \\ & ((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 X0) \wedge (l1_zmodul01 \\ & X0)))))))))) \Rightarrow (k7_zmodul01 X0 (k3_zmodul01 X0) (k4_zmodul01 X0) = \\ & k3_zmodul01 X0) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_zmodul01 X0) \wedge \\ & ((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 X0) \wedge (l1_zmodul01 \\ & X0)))))))))) \Rightarrow (\forall X1. (m1_zmodul01 X1 X0) \Rightarrow (k6_zmodul01 X0 \\ & (k4_zmodul01 X0) X1 = g1_zmodul01 (u1_struct_0 X0) (u2_struct_0 \\ & X0) (u1_algstr_0 X0) (u1_zmodul01 X0))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_zmodul01 X0) \wedge \\ & ((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 X0) \wedge (l1_zmodul01 \\ & X0)))))))))) \Rightarrow (k6_zmodul01 X0 (k3_zmodul01 X0) (k4_zmodul01 X0) = \\ & g1_zmodul01 (u1_struct_0 X0) (u2_struct_0 X0) (u1_algstr_0 X0) \\ & (u1_zmodul01 X0)) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_zmodul01 X0) \wedge \\ & ((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 X0) \wedge (l1_zmodul01 \\ & X0)))))))))) \Rightarrow ((v1_zmodul01 (k4_zmodul01 X0)) \wedge (m1_zmodul01 \\ & (k4_zmodul01 X0) X0)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_zmodul01 X0) \wedge \\ & ((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 X0) \wedge (l1_zmodul01 \\ & X0)))))))))) \Rightarrow ((v1_zmodul01 (k3_zmodul01 X0)) \wedge (m1_zmodul01 \\ & (k3_zmodul01 X0) X0)) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_zmodul01 X0) \wedge \\ & ((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 X0) \wedge (l1_zmodul01 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1_zmodul01 X1 X0) \Rightarrow (\forall X2.(m1_zmodul01 \\ & X2 X0) \Rightarrow ((r1_zmodul01 X0 X1 X2) \Leftrightarrow ((g1_zmodul01 (u1_struct_0 X0) \\ & (u2_struct_0 X0) (u1_algstr_0 X0) (u1_zmodul01 X0) = k6_zmodul01 \\ & X0 X1 X2) \wedge (k7_zmodul01 X0 X1 X2 = k3_zmodul01 X0)))))) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 \\ & X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\ & ((v2_zmodul01 X0) \wedge ((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 \\ & X0) \wedge (l1_zmodul01 X0)))))))))) \wedge ((m1_zmodul01 X1 X0) \wedge (m1_zmodul01 \\ & X2 X0))) \Rightarrow (k7_zmodul01 X0 X1 X2 = k7_zmodul01 X0 X2 X1) \end{aligned} \tag{7}$$

Theorem 1

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ &X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_zmodul01 X0) \wedge \\ &((v3_zmodul01 X0) \wedge ((v4_zmodul01 X0) \wedge ((v5_zmodul01 X0) \wedge (l1_zmodul01 \\ &X0)))))))))) \Rightarrow ((r1_zmodul01 X0 (k3_zmodul01 X0) (k4_zmodul01 \\ &X0)) \wedge (r1_zmodul01 X0 (k4_zmodul01 X0) (k3_zmodul01 X0))) \end{aligned}$$