

t45_rmod_3 (TMbAFmfc- syN1RE9EuDVvrUEKJArxsAkw6Fh)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ 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 $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $v4_vectsp_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_vectsp_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_rmod_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_rmod_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_rmod_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (\forall X6. \\
& (m1_subset_1 X6 (u1_struct_0 X1)) \Rightarrow (\forall X7.(m1_subset_1 X7 \\
& (u1_struct_0 X1)) \Rightarrow (\forall X8.(m1_subset_1 X8 (u1_struct_0 X1)) \Rightarrow \\
& (((r1_rmod_3 X0 X1 X2 X3) \wedge ((X4 = k3_rlvect_1 X1 X5 X6) \wedge ((X4 = k3_rlvect_1 \\
& X1 X7 X8) \wedge ((r1_struct_0 X2 X5) \wedge ((r1_struct_0 X2 X7) \wedge ((r1_struct_0 \\
& X3 X6) \wedge (r1_struct_0 X3 X8)))))) \Rightarrow ((X5 = X7) \wedge (X6 = X8)))))))))
\end{aligned}$$

(1)

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\ & X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\ & (l1_vectsp_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\ & (m1_rmod_2 X3 X0 X1) \Rightarrow ((r1_rmod_3 X0 X1 X2 X3) \Rightarrow (r1_rmod_3 X0 X1 X3 \\ & X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 \\ & X1) \wedge (m1_subset_1 X2 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k3_domain_1 X0 X1 \\ & X2 = k2_xtuple_0 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 \\ & X1) \wedge (m1_subset_1 X2 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_domain_1 X0 X1 \\ & X2 = k1_xtuple_0 X2) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 \\ & (u1_struct_0 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. (l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0. (l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_struct_0 X0) \Rightarrow (\forall X1. (l1_vectsp_2 X1 X0) \Rightarrow \\ & (l2_algstr_0 X1)) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0. (l1_algstr_0 X0) \Rightarrow (l1_struct_0 X0) \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2_struct_0 \\
& X0)\wedge((v13_algstr_0 X0)\wedge((v3_group_1 X0)\wedge((v4_vectsp_1 X0)\wedge \\
& ((v5_vectsp_1 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 \\
& X0)\wedge(l6_algstr_0 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge((v13_algstr_0 \\
& X1)\wedge((v2_rlvect_1 X1)\wedge((v3_rlvect_1 X1)\wedge((v4_rlvect_1 X1)\wedge \\
& ((v4_vectsp_2 X1 X0)\wedge(l1_vectsp_2 X1 X0))))))))\wedge((m1_subset_1 \\
& X2 (u1_struct_0 X1))\wedge((m1_rmod_2 X3 X0 X1)\wedge(m1_rmod_2 X4 X0 X1))))\Rightarrow \\
& (m1_subset_1 (k4_rmod_3 X0 X1 X2 X3 X4) (k2_zfmisc_1 (u1_struct_0 \\
& X1) (u1_struct_0 X1)))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 \\
& X1)\wedge(m1_subset_1 X2 (k2_zfmisc_1 X0 X1))))\Rightarrow(m1_subset_1 (k3_domain_1 \\
& X0 X1 X2) X1)
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 \\
& X1)\wedge(m1_subset_1 X2 (k2_zfmisc_1 X0 X1))))\Rightarrow(m1_subset_1 (k2_domain_1 \\
& X0 X1 X2) X0)
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v3_group_1 \\
& X0)\wedge((v4_vectsp_1 X0)\wedge((v5_vectsp_1 X0)\wedge((v2_rlvect_1 X0)\wedge \\
& ((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge(l6_algstr_0 X0))))))))\Rightarrow \\
& (\forall X1.(((\neg v2_struct_0 X1)\wedge((v13_algstr_0 X1)\wedge((v2_rlvect_1 \\
& X1)\wedge((v3_rlvect_1 X1)\wedge((v4_rlvect_1 X1)\wedge((v4_vectsp_2 X1 X0)\wedge \\
& (l1_vectsp_2 X1 X0))))))))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X1))\Rightarrow(\forall X3.(m1_rmod_2 X3 X0 X1)\Rightarrow(\forall X4.(m1_rmod_2 \\
& X4 X0 X1)\Rightarrow((r1_rmod_3 X0 X1 X3 X4)\Rightarrow(\forall X5.(m1_subset_1 X5 (\\
& k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X1))\Rightarrow((X5 = k4_rmod_3 \\
& X0 X1 X2 X3 X4)\Leftrightarrow((X2 = k3_rlvect_1 X1 (k2_domain_1 (u1_struct_0 X1) \\
& (u1_struct_0 X1) X5) (k3_domain_1 (u1_struct_0 X1) (u1_struct_0 \\
& X1) X5))\wedge((r1_struct_0 X3 (k2_domain_1 (u1_struct_0 X1) (u1_struct_0 \\
& X1) X5))\wedge(r1_struct_0 X4 (k3_domain_1 (u1_struct_0 X1) (u1_struct_0 \\
& X1) X5))))))))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v2_rlvect_1 X0)\wedge(l1_algstr_0 \\
& X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 \\
& X0))))\Rightarrow(k3_rlvect_1 X0 X1 X2 = k3_rlvect_1 X0 X2 X1)
\end{aligned} \tag{14}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\ & X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\ & (l1_vectsp_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\ & (m1_rmod_2 X3 X0 X1) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\ & X1) \Rightarrow ((r1_rmod_3 X0 X1 X2 X3) \Rightarrow (k2_domain_1 (u1_struct_0 X1) (u1_struct_0 \\ & X1) (k4_rmod_3 X0 X1 X4 X2 X3) = k3_domain_1 (u1_struct_0 X1) (u1_struct_0 \\ & X1) (k4_rmod_3 X0 X1 X4 X3 X2))))))) \end{aligned}$$