

t36_extpro_1

(TMZ5fvb3Y6x649Q33bBXu8F7EKREZmZEGm4)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_setfam_1 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_compos_1 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v5_funct_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_compos_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m2_subset_1 X0 k1_numbers k5_numbers) \Rightarrow (\forall X1. \\
 & (m2_subset_1 X1 k1_numbers k5_numbers) \Rightarrow ((r1_xxreal_0 X0 X1) \Rightarrow \\
 & (\forall X2. ((\neg v1_xboole_0 X2) \wedge (\neg v1_setfam_1 X2)) \Rightarrow (\forall X3. \\
 & ((\neg v2_struct_0 X3) \wedge (v2_memstr_0 X3 X2) \wedge ((v3_memstr_0 X3 X2) \wedge \\
 & ((v3_extpro_1 X3 X2) \wedge (l1_extpro_1 X3 X2)))))) \Rightarrow (\forall X4. ((v1_relat_1 \\
 & X4) \wedge ((v4_relat_1 X4 k5_numbers) \wedge ((v5_relat_1 X4 (u1_compos_1 \\
 & X3)) \wedge (v1_funct_1 X4)))) \Rightarrow (\forall X5. ((v1_relat_1 X5) \wedge ((v4_relat_1 \\
 & X5 (u1_struct_0 X3)) \wedge ((v1_funct_1 X5) \wedge ((v5_funct_1 X5 (k2_memstr_0 \\
 & X2 X3)) \wedge (v1_partfun1 X5 (u1_struct_0 X3)))))) \Rightarrow ((k3_extpro_1 \\
 & X2 X3 X4 (k5_extpro_1 X2 X3 X4 X5 X0) = k2_compos_1 X3) \Rightarrow (k5_extpro_1 \\
 & X2 X3 X4 X5 X1 = k5_extpro_1 X2 X3 X4 X5 X0))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v1_xboole_0 \\ & X0) \wedge (\neg v1_setfam_1 X0)) \wedge (((\neg v2_struct_0 X1) \wedge ((v2_memstr_0 X1 \\ & X0) \wedge ((v3_memstr_0 X1 X0) \wedge ((v3_extpro_1 X1 X0) \wedge (l1_extpro_1 X1 \\ & X0)))))) \wedge (((v1_relat_1 X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 \\ & X2 (u1_compos_1 X1)) \wedge (v1_funct_1 X2)))))) \wedge ((v1_relat_1 X3) \wedge ((\\ & v4_relat_1 X3 (u1_struct_0 X1)) \wedge ((v1_funct_1 X3) \wedge ((v5_funct_1 \\ & X3 (k2_memstr_0 X0 X1)) \wedge (v1_partfun1 X3 (u1_struct_0 X1))))))))) \Rightarrow \\ & (m2_subset_1 (k8_extpro_1 X0 X1 X2 X3) k1_numbers k5_numbers) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v1_xboole_0 X0) \wedge (\neg v1_setfam_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge ((v2_memstr_0 X1 X0) \wedge ((v3_memstr_0 X1 X0) \wedge \\ & ((v3_extpro_1 X1 X0) \wedge (l1_extpro_1 X1 X0)))))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\ & X1)) \wedge (v1_funct_1 X2)))))) \Rightarrow (\forall X3. ((v1_relat_1 X3) \wedge ((v4_relat_1 \\ & X3 (u1_struct_0 X1)) \wedge ((v1_funct_1 X3) \wedge ((v5_funct_1 X3 (k2_memstr_0 \\ & X0 X1)) \wedge (v1_partfun1 X3 (u1_struct_0 X1)))))) \Rightarrow ((r1_extpro_1 \\ & X0 X1 X2 X3) \Rightarrow (\forall X4. (m2_subset_1 X4 k1_numbers k5_numbers) \Rightarrow \\ & ((X4 = k8_extpro_1 X0 X1 X2 X3) \Leftrightarrow ((k3_extpro_1 X0 X1 X2 (k5_extpro_1 \\ & X0 X1 X2 X3 X4) = k2_compos_1 X1) \wedge (\forall X5. (m2_subset_1 X5 k1_numbers \\ & k5_numbers) \Rightarrow ((k3_extpro_1 X0 X1 X2 (k5_extpro_1 X0 X1 X2 X3 X5) = \\ & k2_compos_1 X1) \Rightarrow (r1_xreal_0 X4 X5)))))))))) \end{aligned} \quad (3)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v1_xboole_0 X0) \wedge (\neg v1_setfam_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge ((v2_memstr_0 X1 X0) \wedge ((v3_memstr_0 X1 X0) \wedge \\ & ((v3_extpro_1 X1 X0) \wedge (l1_extpro_1 X1 X0)))))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\ & X1)) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 k5_numbers)))))) \Rightarrow (\forall X3. \\ & ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 (u1_struct_0 X1)) \wedge ((v1_funct_1 \\ & X3) \wedge ((v5_funct_1 X3 (k2_memstr_0 X0 X1)) \wedge (v1_partfun1 X3 (u1_struct_0 \\ & X1)))))) \Rightarrow ((r1_extpro_1 X0 X1 X2 X3) \Rightarrow (\forall X4. (m2_subset_1 \\ & X4 k1_numbers k5_numbers) \Rightarrow ((r1_xreal_0 (k8_extpro_1 X0 X1 X2 \\ & X3) X4) \Rightarrow (k3_extpro_1 X0 X1 X2 (k5_extpro_1 X0 X1 X2 X3 X4) = k2_compos_1 \\ & X1)))))) \end{aligned}$$