

t33_extpro_1
(TMSn5GbdoPRFQ3Jpm3bKRHfJPTwDnxavvEo)

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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 $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k3_compos_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k2_compos_1 : \iota \Rightarrow \iota$ be given. Let $k8_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v1_xboole_0 X0) \wedge (\neg v1_setfam_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (v2_memstr_0 X1 X0) \wedge ((v3_memstr_0 X1 X0) \wedge \\
& ((v3_extpro_1 X1 X0) \wedge (l1_extpro_1 X1 X0)))) \Rightarrow (\forall X2. ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& X1)) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 k5_numbers)))) \Rightarrow (\forall X3. \\
& ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 (u1_struct_0 X1)) \wedge ((v1_funct_1 \\
& X3) \wedge ((v5_funct_1 X3 (k2_memstr_0 X0 X1)) \wedge (v1_partfun1 X3 (u1_struct_0 \\
& X1)))))) \Rightarrow ((\exists X4. (m2_subset_1 X4 k1_numbers k5_numbers) \wedge \\
& (k3_compos_1 X1 X2 (k5_memstr_0 X0 X1 (k5_extpro_1 X0 X1 X2 X3 X4)) = \\
& k2_compos_1 X1)) \Rightarrow (\forall X4. (m2_subset_1 X4 k1_numbers k5_numbers) \Rightarrow \\
& (k6_extpro_1 X0 X1 X2 X3 = k6_extpro_1 X0 X1 X2 (k5_extpro_1 X0 X1 X2 \\
& X3 X4))))))
\end{aligned}
\tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m2_subset_1 X0 k1_numbers k5_numbers) \Rightarrow (\forall X1. \\
& ((\neg v1_xboole_0 X1) \wedge (\neg v1_setfam_1 X1)) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\
& X2) \wedge ((v2_memstr_0 X2 X1) \wedge ((v3_memstr_0 X2 X1) \wedge (l1_extpro_1 X2 \\
& X1)))) \Rightarrow (\forall X3. ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 (u1_struct_0 \\
& X2)) \wedge ((v1_funct_1 X3) \wedge ((v5_funct_1 X3 (k2_memstr_0 X1 X2)) \wedge (\\
& v1_partfun1 X3 (u1_struct_0 X2)))))) \Rightarrow (\forall X4. ((v1_relat_1 \\
& X4) \wedge ((v4_relat_1 X4 k5_numbers) \wedge ((v5_relat_1 X4 (u1_compos_1 \\
& X2)) \wedge (v1_funct_1 X4)))) \Rightarrow (\forall X5. (m2_subset_1 X5 k1_numbers \\
& k5_numbers) \Rightarrow (k5_extpro_1 X1 X2 X4 X3 (k2_nat_1 X0 X5) = k5_extpro_1 \\
& X1 X2 X4 (k5_extpro_1 X1 X2 X4 X3 X0) X5))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v1_xboole_0 X0) \wedge (\neg v1_setfam_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge ((v2_memstr_0 X1 X0) \wedge ((v3_memstr_0 X1 X0) \wedge \\
& ((v3_extpro_1 X1 X0) \wedge (l1_extpro_1 X1 X0)))) \Rightarrow (\forall X2. ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& X1)) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 k5_numbers)))))) \Rightarrow (\forall X3. \\
& ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 (u1_struct_0 X1)) \wedge ((v1_funct_1 \\
& X3) \wedge ((v5_funct_1 X3 (k2_memstr_0 X0 X1)) \wedge (v1_partfun1 X3 (u1_struct_0 \\
& X1)))))) \Rightarrow (\forall X4. (m2_subset_1 X4 k1_numbers k5_numbers) \Rightarrow \\
& (((k3_compos_1 X1 X2 (k5_memstr_0 X0 X1 (k5_extpro_1 X0 X1 X2 X3 (\\
& k2_nat_1 X4 np_1))) = k2_compos_1 X1) \Rightarrow ((k3_compos_1 X1 X2 (k5_memstr_0 \\
& X0 X1 (k5_extpro_1 X0 X1 X2 X3 X4)) = k2_compos_1 X1) \vee ((k8_extpro_1 \\
& X0 X1 X2 X3 = k2_nat_1 X4 np_1) \wedge (r1_extpro_1 X0 X1 X2 X3)))) \wedge ((k8_extpro_1 \\
& X0 X1 X2 X3 = k2_nat_1 X4 np_1) \wedge (r1_extpro_1 X0 X1 X2 X3)) \Rightarrow ((k3_compos_1 \\
& X1 X2 (k5_memstr_0 X0 X1 (k5_extpro_1 X0 X1 X2 X3 X4)) \neq k2_compos_1 \\
& X1) \wedge (k3_compos_1 X1 X2 (k5_memstr_0 X0 X1 (k5_extpro_1 X0 X1 X2 X3 \\
& (k2_nat_1 X4 np_1))) = k2_compos_1 X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v1_xboole_0 X0) \wedge (\neg v1_setfam_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge ((v2_memstr_0 X1 X0) \wedge ((v3_memstr_0 X1 X0) \wedge \\
& ((v3_extpro_1 X1 X0) \wedge (l1_extpro_1 X1 X0)))) \Rightarrow (\forall X2. ((v1_relat_1 \\
& X2) \wedge ((v4_relat_1 X2 k5_numbers) \wedge ((v5_relat_1 X2 (u1_compos_1 \\
& X1)) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 k5_numbers)))))) \Rightarrow (\forall X3. \\
& ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 (u1_struct_0 X1)) \wedge ((v1_funct_1 \\
& X3) \wedge ((v5_funct_1 X3 (k2_memstr_0 X0 X1)) \wedge (v1_partfun1 X3 (u1_struct_0 \\
& X1)))))) \Rightarrow (\forall X4. (m2_subset_1 X4 k1_numbers k5_numbers) \Rightarrow \\
& ((k3_compos_1 X1 X2 (k5_memstr_0 X0 X1 (k5_extpro_1 X0 X1 X2 X3 X4)) = \\
& k2_compos_1 X1) \Rightarrow (k6_extpro_1 X0 X1 X2 X3 = k5_extpro_1 X0 X1 X2 X3 \\
& X4))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 \ np_1) \wedge (m2_subset_1 \ np_1 \ k1_numbers \ k5_numbers)) \wedge \\ & ((m1_subset_1 \ np_1 \ k5_numbers) \wedge (m1_subset_1 \ np_1 \ k1_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v1_xboole_0 \\ & X0) \wedge (\neg v1_setfam_1 \ X0)) \wedge (((\neg v2_struct_0 \ X1) \wedge ((v2_memstr_0 \ X1 \\ & X0) \wedge ((v3_memstr_0 \ X1 \ X0) \wedge ((v3_extpro_1 \ X1 \ X0) \wedge (l1_extpro_1 \ X1 \\ & X0)))))) \wedge (((v1_relat_1 \ X2) \wedge ((v4_relat_1 \ X2 \ k5_numbers) \wedge ((v5_relat_1 \\ & X2 \ (u1_compos_1 \ X1)) \wedge (v1_funct_1 \ X2)))))) \wedge ((v1_relat_1 \ X3) \wedge ((\\ & v4_relat_1 \ X3 \ (u1_struct_0 \ X1)) \wedge ((v1_funct_1 \ X3) \wedge ((v5_funct_1 \\ & X3 \ (k2_memstr_0 \ X0 \ X1)) \wedge (v1_partfun1 \ X3 \ (u1_struct_0 \ X1)))))) \Rightarrow \\ & ((v1_relat_1 \ (k6_extpro_1 \ X0 \ X1 \ X2 \ X3)) \wedge ((v4_relat_1 \ (k6_extpro_1 \\ & X0 \ X1 \ X2 \ X3) \ (u1_struct_0 \ X1)) \wedge ((v1_funct_1 \ (k6_extpro_1 \ X0 \ X1 \ X2 \\ & X3)) \wedge ((v5_funct_1 \ (k6_extpro_1 \ X0 \ X1 \ X2 \ X3) \ (k2_memstr_0 \ X0 \ X1)) \wedge \\ & (v1_partfun1 \ (k6_extpro_1 \ X0 \ X1 \ X2 \ X3) \ (u1_struct_0 \ X1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0. (\neg v1_setfam_1 \ X0) \Rightarrow (\neg v1_xboole_0 \ X0) \quad (7)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v1_xboole_0 \ X0) \wedge (\neg v1_setfam_1 \ X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 \ X1) \wedge ((v2_memstr_0 \ X1 \ X0) \wedge ((v3_memstr_0 \ X1 \ X0) \wedge \\ & ((v3_extpro_1 \ X1 \ X0) \wedge (l1_extpro_1 \ X1 \ X0)))))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 \ X2 \ k5_numbers) \wedge ((v5_relat_1 \ X2 \ (u1_compos_1 \\ & X1)) \wedge ((v1_funct_1 \ X2) \wedge (v1_partfun1 \ X2 \ k5_numbers)))))) \Rightarrow (\forall X3. \\ & ((v1_relat_1 \ X3) \wedge ((v4_relat_1 \ X3 \ (u1_struct_0 \ X1)) \wedge ((v1_funct_1 \\ & X3) \wedge ((v5_funct_1 \ X3 \ (k2_memstr_0 \ X0 \ X1)) \wedge (v1_partfun1 \ X3 \ (u1_struct_0 \\ & X1)))))) \Rightarrow (\forall X4. (m2_subset_1 \ X4 \ k1_numbers \ k5_numbers) \Rightarrow \\ & ((k3_compos_1 \ X1 \ X2 \ (k5_memstr_0 \ X0 \ X1 \ (k5_extpro_1 \ X0 \ X1 \ X2 \ X3 \ (k2_nat_1 \\ & X4 \ np_1))) = k2_compos_1 \ X1) \Rightarrow ((k5_memstr_0 \ X0 \ X1 \ (k5_extpro_1 \\ & X0 \ X1 \ X2 \ X3 \ X4) = k5_memstr_0 \ X0 \ X1 \ (k5_extpro_1 \ X0 \ X1 \ X2 \ X3 \ (k2_nat_1 \\ & X4 \ np_1))) \vee (k8_extpro_1 \ X0 \ X1 \ X2 \ X3 = k2_nat_1 \ X4 \ np_1)))))) \end{aligned}$$