

t45_aofa_i00 (TMGMmU-
JGR9wRfMoQ38SygLdbLLQ1naRJa9n)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_unialg_1 : \iota \Rightarrow o$ be given. Let $v3_unialg_1 : \iota \Rightarrow o$ be given. Let $v4_unialg_1 : \iota \Rightarrow o$ be given. Let $v3_aofa_000 : \iota \Rightarrow o$ be given. Let $v4_aofa_000 : \iota \Rightarrow o$ be given. Let $v5_aofa_000 : \iota \Rightarrow o$ be given. Let $v6_aofa_000 : \iota \Rightarrow o$ be given. Let $v2_aofa_i00 : \iota \Rightarrow o$ be given. Let $l1_unialg_1 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v4_card_3 : \iota \Rightarrow o$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_numbers : \iota$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_aofa_000 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_int_1 : \iota \Rightarrow o$ be given. Let $m1_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k21_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k60_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_int_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m3_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k47_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k51_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k42_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k43_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k35_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k25_aofa_i00 : \iota \Rightarrow \iota \Rightarrow \iota$ be

given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 \\
& X0) \wedge ((v4_unialg_1 X0) \wedge ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge \\
& ((v5_aofa_000 X0) \wedge ((v6_aofa_000 X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (v4_card_3 X1)) \Rightarrow \\
& (\forall X2.(m2_funct_2 X2 X1 k4_numbers (k9_funct_2 X1 k4_numbers)) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers))) \Rightarrow \\
& (\forall X4.((v1_aofa_i00 X4 X0 X1 X3) \wedge (m1_aofa_000 X4 X0 (k9_funct_2 \\
& X1 k4_numbers) X3)) \Rightarrow (\forall X5.(m1_aofa_i00 X5 X1 (u1_struct_0 \\
& X0) (k9_funct_2 X1 k4_numbers) X4) \Rightarrow (\forall X6.(m3_aofa_i00 X6 \\
& X0 X1 X3 X4) \Rightarrow ((k21_aofa_i00 X1 k4_numbers (k2_binop_1 (k9_funct_2 \\
& X1 k4_numbers) (u1_struct_0 X0) (k9_funct_2 X1 k4_numbers) X4 X2 \\
& (k47_aofa_i00 X0 X1 X3 X4 X5 X6)) X5 = k3_funct_2 (k9_funct_2 X1 k4_numbers) \\
& k4_numbers X6 X2) \wedge (\forall X7.(m1_subset_1 X7 X1) \Rightarrow ((X7 \neq X5) \Rightarrow (\\
& k21_aofa_i00 X1 k4_numbers (k2_binop_1 (k9_funct_2 X1 k4_numbers) \\
& (u1_struct_0 X0) (k9_funct_2 X1 k4_numbers) X4 X2 (k47_aofa_i00 \\
& X0 X1 X3 X4 X5 X6)) X7 = k21_aofa_i00 X1 k4_numbers X2 X7)))))))))) \\
& (1)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 \\
& X0) \wedge ((v4_unialg_1 X0) \wedge ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge \\
& ((v5_aofa_000 X0) \wedge ((v6_aofa_000 X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (v4_card_3 X1)) \Rightarrow \\
& (\forall X2.(m2_funct_2 X2 X1 k4_numbers (k9_funct_2 X1 k4_numbers)) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers))) \Rightarrow \\
& (\forall X4.((v1_aofa_i00 X4 X0 X1 X3) \wedge (m1_aofa_000 X4 X0 (k9_funct_2 \\
& X1 k4_numbers) X3)) \Rightarrow (\forall X5.(m1_aofa_i00 X5 X1 (u1_struct_0 \\
& X0) (k9_funct_2 X1 k4_numbers) X4) \Rightarrow (\forall X6.(v1_int_1 X6) \Rightarrow \\
& ((k21_aofa_i00 X1 k4_numbers (k2_binop_1 (k9_funct_2 X1 k4_numbers) \\
& (u1_struct_0 X0) (k9_funct_2 X1 k4_numbers) X4 X2 (k51_aofa_i00 \\
& X0 X1 X3 X4 X5 X6)) X5 = X6) \wedge (\forall X7.(m1_subset_1 X7 X1) \Rightarrow ((X7 \neq \\
& X5) \Rightarrow (k21_aofa_i00 X1 k4_numbers (k2_binop_1 (k9_funct_2 X1 k4_numbers) \\
& (u1_struct_0 X0) (k9_funct_2 X1 k4_numbers) X4 X2 (k51_aofa_i00 \\
& X0 X1 X3 X4 X5 X6)) X7 = k21_aofa_i00 X1 k4_numbers X2 X7)))))))))) \\
& (2)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 \\
& X0) \wedge ((v4_unialg_1 X0) \wedge ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge \\
& ((v5_aofa_000 X0) \wedge ((v6_aofa_000 X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (v4_card_3 X1)) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers)))) \Rightarrow \\
& (\forall X3.((v1_aofa_i00 X3 X0 X1 X2) \wedge (m1_aofa_000 X3 X0 (k9_funct_2 \\
& X1 k4_numbers) X2)) \Rightarrow (\forall X4.(m1_aofa_i00 X4 X1 (u1_struct_0 \\
& X0) (k9_funct_2 X1 k4_numbers) X3) \Rightarrow (\forall X5.(m2_funct_2 X5 \\
& X1 k4_numbers (k9_funct_2 X1 k4_numbers)) \Rightarrow (k3_funct_2 (k9_funct_2 \\
& X1 k4_numbers) k4_numbers (k42_aofa_i00 X0 X1 X2 X3 X4) X5 = k21_aofa_i00 \\
& X1 k4_numbers X5 X4))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2_struct_0 \\
& X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 X0) \wedge ((v4_unialg_1 X0) \wedge \\
& ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge ((v5_aofa_000 X0) \wedge ((v6_aofa_000 \\
& X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 X0)))))))))) \wedge (((\neg v1_xboole_0 \\
& X1) \wedge (v4_card_3 X1)) \wedge ((m1_subset_1 X2 (k1_zfmisc_1 (k9_funct_2 \\
& X1 k4_numbers)))) \wedge (((v1_aofa_i00 X3 X0 X1 X2) \wedge (m1_aofa_000 X3 X0 \\
& (k9_funct_2 X1 k4_numbers) X2)) \wedge (v1_int_1 X4)))))) \Rightarrow (m3_aofa_i00 \\
& (k43_aofa_i00 X0 X1 X2 X3 X4) X0 X1 X2 X3)
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2_struct_0 \\
& X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 X0) \wedge ((v4_unialg_1 X0) \wedge \\
& ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge ((v5_aofa_000 X0) \wedge ((v6_aofa_000 \\
& X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 X0)))))))))) \wedge (((\neg v1_xboole_0 \\
& X1) \wedge (v4_card_3 X1)) \wedge ((m1_subset_1 X2 (k1_zfmisc_1 (k9_funct_2 \\
& X1 k4_numbers)))) \wedge (((v1_aofa_i00 X3 X0 X1 X2) \wedge (m1_aofa_000 X3 X0 \\
& (k9_funct_2 X1 k4_numbers) X2)) \wedge (m1_aofa_i00 X4 X1 (u1_struct_0 \\
& X0) (k9_funct_2 X1 k4_numbers) X3)))))) \Rightarrow (m3_aofa_i00 (k42_aofa_i00 \\
& X0 X1 X2 X3 X4) X0 X1 X2 X3)
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& (((\neg v2_struct_0 X0)\wedge((v2_unialg_1 X0)\wedge((v3_unialg_1 X0)\wedge(\\
& v4_unialg_1 X0)\wedge((v3_aofa_000 X0)\wedge((v4_aofa_000 X0)\wedge((v5_aofa_000 \\
& X0)\wedge((v6_aofa_000 X0)\wedge((v2_aofa_i00 X0)\wedge(l1_unialg_1 X0))))))\wedge \\
& (((\neg v1_xboole_0 X1)\wedge(v4_card_3 X1))\wedge((m1_subset_1 X2 (k1_zfmisc_1 \\
& (k9_funct_2 X1 k4_numbers))\wedge((v1_aofa_i00 X3 X0 X1 X2)\wedge(m1_aofa_000 \\
& X3 X0 (k9_funct_2 X1 k4_numbers) X2))\wedge((m3_aofa_i00 X4 X0 X1 X2 X3)\wedge \\
& (m3_aofa_i00 X5 X0 X1 X2 X3))))))\Rightarrow(m3_aofa_i00 (k35_aofa_i00 X0 \\
& X1 X2 X3 X4 X5) X0 X1 X2 X3)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((v2_unialg_1 X0)\wedge((v3_unialg_1 \\
& X0)\wedge((v4_unialg_1 X0)\wedge((v3_aofa_000 X0)\wedge((v4_aofa_000 X0)\wedge \\
& ((v5_aofa_000 X0)\wedge((v6_aofa_000 X0)\wedge((v2_aofa_i00 X0)\wedge(l1_unialg_1 \\
& X0))))))\wedge((\neg v1_xboole_0 X1)\wedge(v4_card_3 X1))\wedge \\
& (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers)))\Rightarrow \\
& (\forall X3.((v1_aofa_i00 X3 X0 X1 X2)\wedge(m1_aofa_000 X3 X0 (k9_funct_2 \\
& X1 k4_numbers) X2))\Rightarrow(\forall X4.(m1_aofa_i00 X4 X1 (u1_struct_0 \\
& X0) (k9_funct_2 X1 k4_numbers) X3)\Rightarrow(\forall X5.(v1_int_1 X5)\Rightarrow \\
& (k60_aofa_i00 X0 X1 X2 X3 X4 X5 = k47_aofa_i00 X0 X1 X2 X3 X4 (k35_aofa_i00 \\
& X0 X1 X2 X3 (k42_aofa_i00 X0 X1 X2 X3 X4) (k43_aofa_i00 X0 X1 X2 X3 X5))))))\wedge \\
& (k51_aofa_i00 X0 X1 X2 X3 X4 X5 = k47_aofa_i00 X0 X1 X2 X3 X4 (k43_aofa_i00 \\
& X0 X1 X2 X3 X5))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((v2_unialg_1 X0)\wedge((v3_unialg_1 \\
& X0)\wedge((v4_unialg_1 X0)\wedge((v3_aofa_000 X0)\wedge((v4_aofa_000 X0)\wedge \\
& ((v5_aofa_000 X0)\wedge((v6_aofa_000 X0)\wedge((v2_aofa_i00 X0)\wedge(l1_unialg_1 \\
& X0))))))\wedge((\neg v1_xboole_0 X1)\wedge(v4_card_3 X1))\wedge \\
& (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers)))\Rightarrow \\
& (\forall X3.((v1_aofa_i00 X3 X0 X1 X2)\wedge(m1_aofa_000 X3 X0 (k9_funct_2 \\
& X1 k4_numbers) X2))\Rightarrow(\forall X4.(m1_aofa_i00 X4 X1 (u1_struct_0 \\
& X0) (k9_funct_2 X1 k4_numbers) X3)\Rightarrow(\forall X5.(v1_int_1 X5)\Rightarrow \\
& (k51_aofa_i00 X0 X1 X2 X3 X4 X5 = k47_aofa_i00 X0 X1 X2 X3 X4 (k43_aofa_i00 \\
& X0 X1 X2 X3 X5))))))\wedge \\
& (k51_aofa_i00 X0 X1 X2 X3 X4 X5 = k47_aofa_i00 X0 X1 X2 X3 X4 (k43_aofa_i00 \\
& X0 X1 X2 X3 X5))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 \\
& X0) \wedge ((v4_unialg_1 X0) \wedge ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge \\
& ((v5_aofa_000 X0) \wedge ((v6_aofa_000 X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (v4_card_3 X1)) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers))) \Rightarrow \\
& (\forall X3.((v1_aofa_i00 X3 X0 X1 X2) \wedge (m1_aofa_000 X3 X0 (k9_funct_2 \\
& X1 k4_numbers) X2)) \Rightarrow (\forall X4.(v1_int_1 X4) \Rightarrow (k43_aofa_i00 \\
& X0 X1 X2 X3 X4 = k25_aofa_i00 X1 X4))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 \\
& X0) \wedge ((v4_unialg_1 X0) \wedge ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge \\
& ((v5_aofa_000 X0) \wedge ((v6_aofa_000 X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (v4_card_3 X1)) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers))) \Rightarrow \\
& (\forall X3.((v1_aofa_i00 X3 X0 X1 X2) \wedge (m1_aofa_000 X3 X0 (k9_funct_2 \\
& X1 k4_numbers) X2)) \Rightarrow (\forall X4.(m3_aofa_i00 X4 X0 X1 X2 X3) \Rightarrow (\forall X5. \\
& (m3_aofa_i00 X5 X0 X1 X2 X3) \Rightarrow (\forall X6.(m3_aofa_i00 X6 X0 X1 X2 \\
& X3) \Rightarrow ((X6 = k35_aofa_i00 X0 X1 X2 X3 X4 X5) \Leftrightarrow (\forall X7.(m2_funct_2 \\
& X7 X1 k4_numbers (k9_funct_2 X1 k4_numbers)) \Rightarrow (k3_funct_2 (k9_funct_2 \\
& X1 k4_numbers) k4_numbers X6 X7 = k5_int_1 (k3_funct_2 (k9_funct_2 \\
& X1 k4_numbers) k4_numbers X4 X7) (k3_funct_2 (k9_funct_2 X1 k4_numbers) \\
& k4_numbers X5 X7))))))))))
\end{aligned} \tag{10}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_unialg_1 X0) \wedge ((v3_unialg_1 \\
& X0) \wedge ((v4_unialg_1 X0) \wedge ((v3_aofa_000 X0) \wedge ((v4_aofa_000 X0) \wedge \\
& ((v5_aofa_000 X0) \wedge ((v6_aofa_000 X0) \wedge ((v2_aofa_i00 X0) \wedge (l1_unialg_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (v4_card_3 X1)) \Rightarrow \\
& (\forall X2.(m2_funct_2 X2 X1 k4_numbers (k9_funct_2 X1 k4_numbers)) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (k9_funct_2 X1 k4_numbers))) \Rightarrow \\
& (\forall X4.((v1_aofa_i00 X4 X0 X1 X3) \wedge (m1_aofa_000 X4 X0 (k9_funct_2 \\
& X1 k4_numbers) X3)) \Rightarrow (\forall X5.(v1_int_1 X5) \Rightarrow (\forall X6.(m1_aofa_i00 \\
& X6 X1 (u1_struct_0 X0) (k9_funct_2 X1 k4_numbers) X4) \Rightarrow ((k21_aofa_i00 \\
& X1 k4_numbers (k2_binop_1 (k9_funct_2 X1 k4_numbers) (u1_struct_0 \\
& X0) (k9_funct_2 X1 k4_numbers) X4 X2 (k60_aofa_i00 X0 X1 X3 X4 X6 X5)) \\
& X6 = k5_int_1 (k21_aofa_i00 X1 k4_numbers X2 X6) X5) \wedge (\forall X7. \\
& (m1_subset_1 X7 X1) \Rightarrow ((X7 \neq X6) \Rightarrow (k21_aofa_i00 X1 k4_numbers (k2_binop_1 \\
& (k9_funct_2 X1 k4_numbers) (u1_struct_0 X0) (k9_funct_2 X1 k4_numbers) \\
& X4 X2 (k60_aofa_i00 X0 X1 X3 X4 X6 X5)) X7 = k21_aofa_i00 X1 k4_numbers \\
& X2 X7))))))))))
\end{aligned}$$