

t27_nattra_1 (TMdYh- LAh7bGWCQ4qcXuGuBd4QTXPUVxiib7)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v2_cat_1 : \iota \Rightarrow o$ be given. Let $v3_cat_1 : \iota \Rightarrow o$ be given. Let $v4_cat_1 : \iota \Rightarrow o$ be given. Let $v5_cat_1 : \iota \Rightarrow o$ be given. Let $v6_cat_1 : \iota \Rightarrow o$ be given. Let $l1_cat_1 : \iota \Rightarrow o$ be given. Let $m2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_nattra_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $m1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\ & X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 \\ & X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge (((\\ & \neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 \\ & X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 \\ & X1)))))))) \wedge ((m2_cat_1 X2 X0 X1) \wedge (m2_cat_1 X3 X0 X1))) \Rightarrow (\forall X4. \\ & (m2_nattra_1 X4 X0 X1 X2 X3) \Rightarrow (m1_nattra_1 X4 X0 X1 X2 X3)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 \\ & X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 \\ & X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge (((\\ & \neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 \\ & X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 \\ & X1)))))))) \wedge ((m2_cat_1 X2 X0 X1) \wedge ((m2_cat_1 X3 X0 X1) \wedge (m1_nattra_1 \\ & X4 X0 X1 X2 X3)))) \Rightarrow (m1_nattra_1 (k8_nattra_1 X0 X1 X2 X3 X4) X0 X1 \\ & X3 X2) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. \\
& (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow ((r2_nattra_1 \\
& X0 X1 X2 X3) \Leftrightarrow ((r1_nattra_1 X0 X1 X2 X3) \wedge (\exists X4.(m1_nattra_1 \\
& X4 X0 X1 X2 X3) \wedge (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\\
& \forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow ((k2_cat_1 X0 X5 \\
& X6 \neq k1_xboole_0) \Rightarrow (\forall X7.(m1_cat_1 X7 X0 X5 X6) \Rightarrow (k5_cat_1 \\
& X1 (k8_cat_1 X0 X1 X2 X5) (k8_cat_1 X0 X1 X2 X6) (k8_cat_1 X0 X1 X3 X6) \\
& (k9_cat_3 X0 X5 X6 X1 X2 X7) (k4_nattra_1 X0 X1 X2 X3 X4 X6) = k5_cat_1 \\
& X1 (k8_cat_1 X0 X1 X2 X5) (k8_cat_1 X0 X1 X3 X5) (k8_cat_1 X0 X1 X3 X6) \\
& (k4_nattra_1 X0 X1 X2 X3 X4 X5) (k9_cat_3 X0 X5 X6 X1 X3 X7)))))))))) \\
& \tag{3}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. \\
& (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4. \\
& (m2_nattra_1 X4 X0 X1 X2 X3) \Rightarrow ((r2_nattra_1 X0 X1 X2 X3) \wedge (v1_nattra_1 \\
& X4 X0 X1 X2 X3) \Rightarrow (k9_nattra_1 X0 X1 X2 X3 X4 = k8_nattra_1 X0 X1 X2 X3 \\
& X4)))))) \\
& \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\
& X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\
& X0) \wedge (l1_cat_1 X0)))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\
& \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\
& X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. \\
& (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow ((r1_nattra_1 \\
& X0 X1 X2 X3) \Rightarrow (\forall X4.(m1_nattra_1 X4 X0 X1 X2 X3) \Rightarrow ((v1_nattra_1 \\
& X4 X0 X1 X2 X3) \Rightarrow (\forall X5.(m1_nattra_1 X5 X0 X1 X3 X2) \Rightarrow ((X5 = k8_nattra_1 \\
& X0 X1 X2 X3 X4) \Leftrightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow (\\
& k4_nattra_1 X0 X1 X3 X2 X5 X6 = k6_cat_1 X1 (k8_cat_1 X0 X1 X2 X6) (k8_cat_1 \\
& X0 X1 X3 X6) (k4_nattra_1 X0 X1 X2 X3 X4 X6)))))))))) \\
& \tag{5}
\end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ & X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ & X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\ & \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\ & X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\ & (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m2_cat_1 X3 X0 X1) \Rightarrow (\forall X4. \\ & (m2_nattr_1 X4 X0 X1 X2 X3) \Rightarrow (((r2_nattr_1 X0 X1 X2 X3) \wedge (v1_nattr_1 \\ & X4 X0 X1 X2 X3)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow \\ & (k4_nattr_1 X0 X1 X3 X2 (k9_nattr_1 X0 X1 X2 X3 X4) X5 = k6_cat_1 X1 \\ & (k8_cat_1 X0 X1 X2 X5) (k8_cat_1 X0 X1 X3 X5) (k4_nattr_1 X0 X1 X2 X3 \\ & X4 X5)))))))))) \end{aligned}$$