

t32_grcat_1
(TMWX3RQpnb688CkrNbiyXTiFzt1npDXRuDT)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v3_grcat_1 : \iota \Rightarrow o$ be given. Let $m3_grcat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k18_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k19_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k20_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v8_algstr_0 : \iota \Rightarrow o$ be given. Let $m2_grcat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $k14_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_grcat_1 : \iota \Rightarrow o$ be given. Let $v1_grcat_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow (\forall X1. \\ & (m3_grcat_1 X1 (k18_grcat_1 X0)) \Rightarrow (\forall X2.(m3_grcat_1 X2 (\\ & k18_grcat_1 X0)) \Rightarrow (\neg(k19_grcat_1 X0 X1 = k20_grcat_1 X0 X2)) \wedge (\forall X3. \\ & ((v8_algstr_0 X3) \wedge (m2_grcat_1 X3 X0)) \Rightarrow (\forall X4.((v8_algstr_0 \\ & X4) \wedge (m2_grcat_1 X4 X0)) \Rightarrow (\forall X5.((v8_algstr_0 X5) \wedge (m2_grcat_1 \\ & X5 X0)) \Rightarrow (\neg(m1_grcat_1 X1 X4 X5) \wedge (m1_grcat_1 X2 X3 X4))))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 \\ & X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\ & (l2_algstr_0 X0)))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge \\ & ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge (l2_algstr_0 X1)))))) \wedge (\\ & ((\neg v2_struct_0 X2) \wedge ((v13_algstr_0 X2) \wedge ((v3_rlvect_1 X2) \wedge ((\\ & v4_rlvect_1 X2) \wedge (l2_algstr_0 X2)))))) \wedge ((m1_grcat_1 X3 X1 X2) \wedge \\ & (m1_grcat_1 X4 X0 X1)))) \Rightarrow (k14_grcat_1 X0 X1 X2 X3 X4 = k13_grcat_1 \\ & X3 X4) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow (\forall X1. \\ & (m2_grcat_1 X1 X0) \Rightarrow (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((\\ & v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge (l2_algstr_0 X1))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow ((\neg v1_xboole_0 (k18_grcat_1 X0)) \wedge (v4_grcat_1 (k18_grcat_1 X0))) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l2_algstr_0 X0)))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge (l2_algstr_0 X1)))))) \wedge \\ & (((\neg v2_struct_0 X2) \wedge ((v13_algstr_0 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 X2) \wedge (l2_algstr_0 X2)))))) \wedge ((m1_grcat_1 X3 X1 X2) \wedge (m1_grcat_1 X4 X0 X1))) \Rightarrow ((v1_grcat_1 (k14_grcat_1 X0 X1 X2 X3 X4)) \wedge (m1_grcat_1 (k14_grcat_1 X0 X1 X2 X3 X4) X0 X2)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge (v4_grcat_1 X1)) \Rightarrow ((X1 = k18_grcat_1 X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow (\exists X3. ((v8_algstr_0 X3) \wedge (m2_grcat_1 X3 X0)) \wedge (\exists X4. ((v8_algstr_0 X4) \wedge (m2_grcat_1 X4 X0)) \wedge ((v1_grcat_1 X2) \wedge (m1_grcat_1 X2 X3 X4))))))) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow (\forall X1. (m3_grcat_1 X1 (k18_grcat_1 X0)) \Rightarrow (\forall X2. (m3_grcat_1 X2 (k18_grcat_1 X0)) \Rightarrow ((k19_grcat_1 X0 X1 = k20_grcat_1 X0 X2) \Rightarrow (k13_grcat_1 X1 X2 \in k18_grcat_1 X0)))) \end{aligned}$$