

t15_bvfunc14 (TMSs-
wmK8o1AsZRBg3GJVKCsCzvXnzedDFBw)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_eqrel_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. \forall X2. \\ & \forall X3. (X1 \neq X3) \Rightarrow (k1_funct_1 (k1_funct_4 X0 (k16_funcop_1 \\ & X1 X2)) X3 = k1_funct_1 X0 X3)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. \forall X2. \\ & \forall X3. \forall X4. \forall X5. \forall X6. \neg (X1 \neq X3) \wedge ((X1 \neq X5) \wedge \\ & (k1_funct_1 (k1_funct_4 (k1_funct_4 (k1_funct_4 X0 (k16_funcop_1 \\ & X1 X2)) (k16_funcop_1 X3 X4)) (k16_funcop_1 X5 X6)) X1 \neq X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & \neg (X0 \neq X1) \wedge ((X2 \neq X0) \wedge (k1_funct_1 (k1_funct_4 (k1_funct_4 (k16_funcop_1 \\ & X0 X3) (k16_funcop_1 X1 X4)) (k16_funcop_1 X2 X5)) X0 \neq X3)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. \forall X2. \\ & \forall X3. \forall X4. (X1 \neq X2) \Rightarrow (k1_funct_1 (k1_funct_4 (k1_funct_4 \\ & X0 (k16_funcop_1 X1 X3)) (k16_funcop_1 X2 X4)) X1 = X3)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (v1_relat_1 (k16_funcop_1 X0 X1)) \wedge (v1_funct_1 (k16_funcop_1 X0 X1)) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \wedge ((\\ & v1_relat_1 X1) \wedge (v1_funct_1 X1))) \Rightarrow ((v1_relat_1 (k1_funct_4 X0 \\ & X1)) \wedge (v1_funct_1 (k1_funct_4 X0 X1))) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_eqrel_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1_eqrel_1 X2 X0) \Rightarrow (\forall X3.(m1_eqrel_1 X3 X0) \Rightarrow \\ & (\forall X4.(m1_eqrel_1 X4 X0) \Rightarrow (\forall X5.((v1_relat_1 X5) \wedge \\ & (v1_funct_1 X5)) \Rightarrow (\forall X6.\forall X7.\forall X8.\forall X9. \\ & (X5 = k1_funct_4 (k1_funct_4 (k1_funct_4 (k16_funcop_1 X2 X7) (\\ & k16_funcop_1 X3 X8)) (k16_funcop_1 X4 X9)) (k16_funcop_1 X1 X6)) \Rightarrow \\ & ((X1 = X2) \vee ((X1 = X3) \vee ((X1 = X4) \vee ((X2 = X3) \vee ((X2 = X4) \vee ((X3 = X4) \vee (\\ & (k1_funct_1 X5 X2 = X7) \wedge ((k1_funct_1 X5 X3 = X8) \wedge (k1_funct_1 X5 X4 = \\ & X9)))))))))))))) \end{aligned}$$