

t109_card_3
(TMNtQ1Qq347aakCds1io8Rz7NRXaGoeE5yh)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v4_funct_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k9_card_3 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k1_setfam_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (2)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (3)$$

Assume the following.

$$\forall X0. \exists X1. m1_subset_1 X1 X0 \quad (4)$$

Assume the following.

$$k1_xboole_0 = the (\lambda X0 : \iota. v1_xboole_0 X0) \quad (5)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Leftrightarrow (\forall X1. \neg X1 \in X0) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((X0 \neq k1_xboole_0) \Rightarrow ((X1 = k1_setfam_1 X0) \Leftrightarrow \\ & (\forall X2. (X2 \in X1) \Leftrightarrow (\forall X3. (X3 \in X0) \Rightarrow (X2 \in X3)))) \wedge ((X0 = \\ & k1_xboole_0) \Rightarrow ((X1 = k1_setfam_1 X0) \Leftrightarrow (X1 = k1_xboole_0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v4_funct_1 X0) \Rightarrow (k9_card_3 X0 = k1_setfam_1 (ReplSep \\ & (tosep (\lambda X1 : \iota. m1_subset_1 X1 X0)) (\lambda X1 : \iota. True) (\lambda X1 : \\ & \iota. k9_xtuple_0 X1))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(v4_funct_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_relat_1 X1) \wedge (v1_funct_1 X1)) \quad (9)$$

Theorem 1

$$\forall X0.\forall X1.((\neg v1_xboole_0 X1) \wedge (v4_funct_1 X1)) \Rightarrow ((\forall X2.((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X2 \in X1) \Rightarrow (X0 \in k9_xtuple_0 X2))) \Rightarrow (X0 \in k9_card_3 X1))$$