

t69_card_3

(TMHCfw4jbJBxNNzqeE2UCUhTBCKuVvDuf3m)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k6_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_card_3 : \iota \Rightarrow \iota$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (r1_xboole_0 X0 (k4_xboole_0 X1 X2)) \Rightarrow (r1_xboole_0 X1 (k4_xboole_0 X0 X2)) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3. ((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow \\ (((r1_xboole_0 (k9_xtuple_0 X0) (k6_subset_1 (k9_xtuple_0 X2) (k9_xtuple_0 X3))) \wedge ((X2 \in k8_card_3 X1) \wedge (X3 \in k8_card_3 X0))) \Rightarrow \\ (k1_funct_4 X2 X3 \in k8_card_3 (k1_funct_4 X1 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. k6_subset_1 X0 X1 = k4_xboole_0 X0 X1 \quad (3)$$

Theorem 1

$$\begin{aligned} \forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. ((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (\forall X3. ((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow \\ (((r1_xboole_0 (k9_xtuple_0 X2) (k6_subset_1 (k9_xtuple_0 X0) (k9_xtuple_0 X3))) \wedge ((X2 \in k8_card_3 X1) \wedge (X3 \in k8_card_3 X0))) \Rightarrow \\ (k1_funct_4 X2 X3 \in k8_card_3 (k1_funct_4 X1 X0)))))) \end{aligned}$$