

t23_sysrel
(TMPMC2dS7M5MTbxQYdnrWFQg349A7e6U2S)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_relat_1 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (r1_tarski X0 X1) \Rightarrow (k3_xboole_0 X0 X1 = X0) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (v1_relat_1 X0) \Rightarrow & (((r1_tarski X0 (k3_relat_1 X0 X0)) \wedge \\ & (k3_relat_1 X0 (k6_subset_1 X0 (k4_relat_1 (k10_xtuple_0 X0))) = \\ & k1_xboole_0)) \Rightarrow (r1_tarski (k4_relat_1 (k10_xtuple_0 X0)) X0)) \wedge \\ & (((r1_tarski X0 (k3_relat_1 X0 X0)) \wedge (k3_relat_1 (k6_subset_1 \\ & X0 (k4_relat_1 (k9_xtuple_0 X0))) X0 = k1_xboole_0)) \Rightarrow (r1_tarski \\ & (k4_relat_1 (k9_xtuple_0 X0)) X0))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (3)$$

Theorem 1

$$\begin{aligned} \forall X0. (v1_relat_1 X0) \Rightarrow & (((r1_tarski X0 (k3_relat_1 X0 X0)) \wedge \\ & (k3_relat_1 X0 (k6_subset_1 X0 (k4_relat_1 (k10_xtuple_0 X0))) = \\ & k1_xboole_0)) \Rightarrow (k3_xboole_0 X0 (k4_relat_1 (k10_xtuple_0 X0)) = \\ & k4_relat_1 (k10_xtuple_0 X0)) \wedge (((r1_tarski X0 (k3_relat_1 X0 \\ & X0)) \wedge (k3_relat_1 (k6_subset_1 X0 (k4_relat_1 (k9_xtuple_0 X0))) \\ & X0 = k1_xboole_0)) \Rightarrow (k3_xboole_0 X0 (k4_relat_1 (k9_xtuple_0 X0)) = \\ & k4_relat_1 (k9_xtuple_0 X0)))) \end{aligned}$$