

t15_mssubfam (TM-
Npz3hDs5AkgCxVzpU9NbdSS1EuDSd7F6N)

October 27, 2020

Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funcop_1 : \iota \Rightarrow o$ be given. Let $k8_pboole : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 X0 \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (k1_relset_1 X0 X1 = k9_xtuple_0 X1) \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. k3_xboole_0 X0 X0 = X0 \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_funcop_1 X0))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_funcop_1 X1)))) \Rightarrow ((v1_relat_1 (k8_pboole X0 X1)) \wedge ((v1_funct_1 (k8_pboole X0 X1)) \wedge (v1_funcop_1 (k8_pboole X0 X1)))) \tag{4}$$

Assume the following.

$$\forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_funcop_1 X0))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_funcop_1 X1)))) \Rightarrow ((v1_relat_1 (k8_pboole X0 X1)) \wedge (v1_funct_1 (k8_pboole X0 X1))) \tag{5}$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (v1_partfun1 X1 X0 \Leftrightarrow (k1_relset_1 X0 X1 = X0)) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_funcop_1 X0))) \Rightarrow \\
& \quad (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_funcop_1 \\
& \quad X1))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X2 = k8_pboole \\
& X0 X1) \Leftrightarrow ((k9_xtuple_0 X2 = k3_xboole_0 (k9_xtuple_0 X0) (k9_xtuple_0 \\
& X1)) \wedge (\forall X3.(X3 \in k9_xtuple_0 X2) \Rightarrow (k1_funct_1 X2 X3 = k3_relat_1 \\
& \quad (k1_funct_1 X0 X3) (k1_funct_1 X1 X3)))))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\forall X0. \forall X1. (v1_relat_1 X1) \Rightarrow ((v4_relat_1 X1 X0) \Leftrightarrow (r1_tarski (k9_xtuple_0 X1) X0)) \tag{8}$$

Theorem 1

$$\begin{aligned}
& \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge (\\
& (v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v1_funcop_1 X1)))))) \Rightarrow (\\
& \quad \forall X2. ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 \\
& X2) \wedge ((v1_partfun1 X2 X0) \wedge (v1_funcop_1 X2)))))) \Rightarrow ((v1_relat_1 \\
& (k8_pboole X1 X2)) \wedge ((v4_relat_1 (k8_pboole X1 X2) X0) \wedge ((v1_funct_1 \\
& (k8_pboole X1 X2)) \wedge ((v1_partfun1 (k8_pboole X1 X2) X0) \wedge (v1_funcop_1 \\
& \quad (k8_pboole X1 X2)))))))))
\end{aligned}$$