t18_sysrel (TM-LykJWiUwwgW77uaENLqfk4xDRhNohZUX5)

October 27, 2020

Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_relat\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_relat\_1 : \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\neg(X0 \in X1) \wedge (v1\_xboole\_0\ X1) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X2))) \Rightarrow (m1\_subset\_1\ X0\ X2) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(v1\_relat\_1\ X1) \Rightarrow ((\forall X2.(X2 \in X0) \Rightarrow (k4\_tarski\ X2\ X2 \in X1)) \Rightarrow (r1\_tarski\ (k4\_relat\_1\ X0)\ X1)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ X1)) \Leftrightarrow (r1\_tarski\ X0\ X1) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{5}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0) \Rightarrow (k2\_relat\_1\ (k2\_relat\_1\ X0) = X0) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ X0) \Rightarrow (\neg v1\_xboole\_0\ (k2\_xboole\_0\ X0\ X1)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X0)\wedge(v1\_relat\_1\ X1))\Rightarrow(v1\_relat\_1\ (k2\_xboole\_0\ X0\ X1)) \tag{8}$$

Assume the following.

$$\forall X0.v1\_relat\_1\ (k4\_relat\_1\ X0) \tag{9}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0)\Rightarrow(v1\_relat\_1\ (k2\_relat\_1\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0)\Rightarrow(\forall X1.(v1\_relat\_1\ X1)\Rightarrow((X1 = k2\_relat\_1\ X0)\Leftrightarrow(\forall X2.\forall X3.(k4\_tarski\ X2\ X3 \in X1)\Leftrightarrow(k4\_tarski\ X3\ X2 \in X0)))) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski\ X0\ X1 = k2\_tarski\ (k2\_tarski\ X0\ X1)\ (k1\_tarski\ X0) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k2\_xboole\_0\ X0\ X1)\Leftrightarrow(\forall X3.(X3 \in X2)\Leftrightarrow((X3 \in X0)\vee(X3 \in X1))) \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.(v1\_relat\_1\ X1)\Rightarrow((X1 = k4\_relat\_1\ X0)\Leftrightarrow(\forall X2.\forall X3.(k4\_tarski\ X2\ X3 \in X1)\Leftrightarrow((X2 \in X0)\wedge(X2 = X3)))) \tag{14}$$

Theorem 1

$$\forall X0.\forall X1.(v1\_relat\_1\ X1)\Rightarrow((r1\_tarski\ (k4\_relat\_1\ X0)\ (k2\_xboole\_0\ X1\ (k2\_relat\_1\ X1)))\Rightarrow((r1\_tarski\ (k4\_relat\_1\ X0)\ X1)\wedge(r1\_tarski\ (k4\_relat\_1\ X0)\ (k2\_relat\_1\ X1))))$$