

t31_interval

(TMah4oQyK2RWvTCrGpGqFsYo4xia9qEjfr)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_interval : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_interval : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_interval : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_interval : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_interval : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v1_xboole_0 X1) \wedge ((v1_interval X1 X0) \wedge \\
& \quad (m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 X0)))))) \Rightarrow (\forall X2. \\
& ((\neg v1_xboole_0 X2) \wedge ((v1_interval X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& \quad (k1_zfmisc_1 X0)))))) \Rightarrow (\forall X3. ((\neg v1_xboole_0 X3) \wedge ((v1_interval \\
& X3 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k1_zfmisc_1 X0)))))) \Rightarrow (k2_setfam_1 \\
& X1 (k3_setfam_1 X2 X3) = k3_setfam_1 (k2_setfam_1 X1 X2) (k2_setfam_1 \\
& \quad X1 X3)))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((\neg v1_xboole_0 \\
& X1) \wedge (m1_interval X1 X0)) \wedge ((\neg v1_xboole_0 X2) \wedge (m1_interval X2 \\
& \quad X0)))) \Rightarrow ((r1_interval X0 X1 X2) \Leftrightarrow (X1 = X2))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge \\
& (m1_interval X1 X0)) \Rightarrow ((\neg v1_xboole_0 X1) \wedge ((v1_interval X1 X0) \wedge \\
& \quad (m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 X0))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((\neg v1_xboole_0 \\
& X1) \wedge (m1_interval X1 X0)) \wedge ((\neg v1_xboole_0 X2) \wedge (m1_interval X2 \\
& \quad X0)))) \Rightarrow (\neg v1_xboole_0 (k4_interval X0 X1 X2))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((\neg v1_xboole_0 \\
& X1) \wedge (m1_interval X1 X0)) \wedge ((\neg v1_xboole_0 X2) \wedge (m1_interval X2 \\
& \quad X0)))) \Rightarrow (\neg v1_xboole_0 (k3_interval X0 X1 X2))
\end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_interval1 X1 X0))\wedge((\neg v1_xboole_0 X2)\wedge(m1_interval1 X2 X0))))\Rightarrow(m1_interval1 (k4_interval1 X0 X1 X2) X0) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_interval1 X1 X0))\wedge((\neg v1_xboole_0 X2)\wedge(m1_interval1 X2 X0))))\Rightarrow(m1_interval1 (k3_interval1 X0 X1 X2) X0) \quad (7)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((\neg v1_xboole_0 X1)\wedge(m1_interval1 X1 X0))\Rightarrow(\forall X2.((\neg v1_xboole_0 X2)\wedge(m1_interval1 X2 X0))\Rightarrow(k4_interval1 X0 X1 X2 = k2_setfam.1 X1 X2))) \quad (8)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((\neg v1_xboole_0 X1)\wedge(m1_interval1 X1 X0))\Rightarrow(\forall X2.((\neg v1_xboole_0 X2)\wedge(m1_interval1 X2 X0))\Rightarrow(k3_interval1 X0 X1 X2 = k3_setfam.1 X1 X2))) \quad (9)$$

Theorem 1

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((\neg v1_xboole_0 X1)\wedge(m1_interval1 X1 X0))\Rightarrow(\forall X2.((\neg v1_xboole_0 X2)\wedge(m1_interval1 X2 X0))\Rightarrow(\forall X3.((\neg v1_xboole_0 X3)\wedge(m1_interval1 X3 X0))\Rightarrow(r1_interval1 X0 (k4_interval1 X0 X1 (k3_interval1 X0 X2 X3)) (k3_interval1 X0 (k4_interval1 X0 X1 X2) (k4_interval1 X0 X1 X3)))))))$$