

t5_topreal4
(TMH9ChzjbqqcKggqcm4TpQN1amQFSwUMkzVD)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k15_euclid : \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $v1_topreal4 : \iota \Rightarrow o$ be given. Let $v1_topreal2 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $r1_topreal4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_topreal1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole_0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 (k15_euclid \\ np_2)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 (k15_euclid \\ np_2)))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 (k15_euclid \\ np_2)))) \Rightarrow ((r1_topreal4 X0 X1 X2) \Rightarrow ((X1 \in X0) \wedge (X2 \in X0)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. (m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 (k15_euclid \\ np_2)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 (k15_euclid \\ np_2)))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 (k15_euclid \\ np_2)))) \Rightarrow ((r1_topreal4 X0 X1 X2) \Rightarrow (r1_topreal1 (k15_euclid np_2) \\ X1 X2 X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\forall X2.((\neg v1_xboole_0 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (u1_struct_0 (k15_euclid np_2)))))) \Rightarrow (\forall X3.((\neg v1_xboole_0 \\
& X3) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 (k15_euclid np_2)))))) \Rightarrow \\
& (\forall X4.((\neg v1_xboole_0 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\
& (u1_struct_0 (k15_euclid np_2)))))) \Rightarrow (((r1_topreal1 (k15_euclid \\
& np_2) X0 X1 X3) \wedge ((r1_topreal1 (k15_euclid np_2) X0 X1 X4) \wedge ((X2 = \\
& k4_subset_1 (u1_struct_0 (k15_euclid np_2)) X3 X4) \wedge (k9_subset_1 \\
& (u1_struct_0 (k15_euclid np_2)) X3 X4 = k2_tarski X0 X1)))))) \Rightarrow (v1_topreal2 \\
& X2))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 (k15_euclid \\
& np_2)))) \Rightarrow ((v1_topreal4 X0) \Leftrightarrow (\exists X1.(m1_subset_1 X1 (u1_struct_0 \\
& (k15_euclid np_2))) \wedge (\exists X2.(m1_subset_1 X2 (u1_struct_0 \\
& (k15_euclid np_2))) \wedge (\exists X3.(m1_subset_1 X3 (k1_zfmisc_1 \\
& (u1_struct_0 (k15_euclid np_2)))) \wedge (\exists X4.(m1_subset_1 \\
& X4 (k1_zfmisc_1 (u1_struct_0 (k15_euclid np_2)))))) \wedge ((X1 \neq X2) \wedge \\
& ((X1 \in X0) \wedge ((X2 \in X0) \wedge ((r1_topreal4 X3 X1 X2) \wedge ((r1_topreal4 X4 X1 \\
& X2) \wedge ((k9_subset_1 (u1_struct_0 (k15_euclid np_2)) X3 X4 = k2_tarski \\
& X1 X2) \wedge (X0 = k4_subset_1 (u1_struct_0 (k15_euclid np_2)) X3 X4))))))))))
\end{aligned} \tag{5}$$

Theorem 1

$$\forall X0.(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 (k15_euclid np_2)))) \Rightarrow ((v1_topreal4 X0) \Rightarrow (v1_topreal2 X0))$$