

t163\_xxreal\_1 (TM-  
LiVNcZYQ2nmiHS6y7Fsv2ZWQH6CWoMWNd)

October 27, 2020

Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xxreal\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1\_tarski X0 X1)\wedge(r1\_tarski X2 X1))\Rightarrow(r1\_tarski (k2\_xboole\_0 X0 X2) X1) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0)\Rightarrow(\forall X1.(v1\_xxreal\_0 X1)\Rightarrow(\forall X2.(v1\_xxreal\_0 X2)\Rightarrow(\forall X3.(v1\_xxreal\_0 X3)\Rightarrow(((r1\_xxreal\_0 X0 X1)\wedge(r1\_xxreal\_0 X2 X3))\Rightarrow(r1\_tarski (k3\_xxreal\_1 X1 X2) (k3\_xxreal\_1 X0 X3)))))) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0)\Rightarrow(\forall X1.(v1\_xxreal\_0 X1)\Rightarrow(k4\_xxreal\_0 (k3\_xxreal\_0 X0 X1) X1 = X1)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski X0 X0 \quad (4)$$

Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0)\Rightarrow(\forall X1.(v1\_xxreal\_0 X1)\Rightarrow(((r1\_xxreal\_0 X0 X1)\Rightarrow(k3\_xxreal\_0 X0 X1 = X0))\wedge((\neg r1\_xxreal\_0 X0 X1)\Rightarrow(k3\_xxreal\_0 X0 X1 = X1)))) \quad (5)$$

Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0)\Rightarrow(\forall X1.(v1\_xxreal\_0 X1)\Rightarrow(((r1\_xxreal\_0 X1 X0)\Rightarrow(k4\_xxreal\_0 X0 X1 = X0))\wedge((\neg r1\_xxreal\_0 X1 X0)\Rightarrow(k4\_xxreal\_0 X0 X1 = X1)))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0)\wedge(v1\_xxreal\_0 X1))\Rightarrow( (r1\_xxreal\_0 X0 X1)\vee(r1\_xxreal\_0 X1 X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0)\wedge(v1\_xxreal\_0 X1))\Rightarrow( k3\_xxreal\_0 X0 X1 = k3\_xxreal\_0 X1 X0) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (9)$$

**Theorem 1**

$$\forall X0.(v1\_xxreal\_0 X0)\Rightarrow(\forall X1.(v1\_xxreal\_0 X1)\Rightarrow(\forall X2. (v1\_xxreal\_0 X2)\Rightarrow(\forall X3.(v1\_xxreal\_0 X3)\Rightarrow(r1\_tarski (k2\_xboole\_0 (k3\_xxreal\_1 X0 X1) (k3\_xxreal\_1 X2 X3)) (k3\_xxreal\_1 (k3\_xxreal\_0 X0 X2) (k4\_xxreal\_0 X1 X3)))))))$$