

# t178\_xxreal\_1

(TMHW4dYtJhBeH4oQLQbsnAJvnm67sbdPopN)

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

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

Assume the following.

$$\forall X0. \forall X1. r1\_tarski X0 (k2\_xboole\_0 X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. k2\_xboole\_0 (k2\_xboole\_0 X0 X1) X2 = k2\_xboole\_0 X0 (k2\_xboole\_0 X1 X2) \quad (3)$$

Assume the following.

$$\forall X0. (v1\_xxreal\_0 X0) \Rightarrow (\forall X1. (v1\_xxreal\_0 X1) \Rightarrow (\forall X2. (v1\_xxreal\_0 X2) \Rightarrow (\forall X3. (v1\_xxreal\_0 X3) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow ((r1\_xxreal\_0 X3 X2) \vee (r1\_tarski (k3\_xxreal\_1 X1 X2) (k4\_xxreal\_1 X0 X3)))))))) \quad (4)$$

Assume the following.

$$\forall X0. (v1\_xxreal\_0 X0) \Rightarrow (\forall X1. (v1\_xxreal\_0 X1) \Rightarrow (\forall X2. (v1\_xxreal\_0 X2) \Rightarrow (((r1\_xxreal\_0 X0 X1) \wedge (r1\_xxreal\_0 X1 X2)) \Rightarrow (r1\_xxreal\_0 X0 X2)))) \quad (5)$$

Assume the following.

$$\forall X0. (v1\_xxreal\_0 X0) \Rightarrow (\forall X1. (v1\_xxreal\_0 X1) \Rightarrow (\forall X2. (v1\_xxreal\_0 X2) \Rightarrow (\neg(\neg r1\_xxreal\_0 X1 X0) \wedge (\neg r1\_xxreal\_0 X2 X1) \wedge (k2\_xboole\_0 (k3\_xxreal\_1 X0 X1) (k2\_xxreal\_1 X1 X2) \neq k4\_xxreal\_1 X0 X2)))))) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow (((r1\_xxreal\_0 X0 X1) \wedge (r1\_xxreal\_0 X1 X2)) \Rightarrow \\ & (k2\_xboole\_0 (k3\_xxreal\_1 X0 X1) (k3\_xxreal\_1 X1 X2) = k3\_xxreal\_1 \\ & X0 X2)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X0 = X0 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1) \Leftrightarrow ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \Rightarrow ( \\ & (r1\_xxreal\_0 X0 X1) \vee (r1\_xxreal\_0 X1 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow (\forall X3.(v1\_xxreal\_0 X3) \Rightarrow ((r1\_xxreal\_0 \\ & X1 X2) \Rightarrow ((r1\_xxreal\_0 X1 X0) \vee ((r1\_xxreal\_0 X3 X2) \vee (k2\_xboole\_0 \\ & (k3\_xxreal\_1 X0 X2) (k2\_xxreal\_1 X1 X3) = k4\_xxreal\_1 X0 X3)))))) \end{aligned}$$