

## t31\_xxreal\_2

(TMGfvW4D5xyHXeMbHnDuidZEaygw4A6TqDM)

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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  $k1\_xxreal\_2 : \iota \Rightarrow \iota$  be given. Let  $k2\_xxreal\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_xxreal\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_membered : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow ((X0 \in k2\_xxreal\_1 X1 X2) \Leftrightarrow ((r1\_xxreal\_0 X1 X0) \wedge \\ & (\neg r1\_xxreal\_0 X2 X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (m1\_xxreal\_2 X0 (k2\_xxreal\_1 X1 X0))) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow ((\forall X3.(v1\_xxreal\_0 X3) \Rightarrow (\neg(\neg r1\_xxreal\_0 \\ & X3 X0) \wedge ((\neg r1\_xxreal\_0 X1 X3) \wedge (\neg r1\_xxreal\_0 X3 X2)))) \Rightarrow ((r1\_xxreal\_0 \\ & X1 X0) \vee (r1\_xxreal\_0 X1 X2)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \Rightarrow (v2\_membered (k2\_xxreal\_1 X0 X1)) \tag{4}$$

Assume the following.

$$\forall X0.(v2\_membered X0) \Rightarrow (\forall X1.(m1\_xxreal\_2 X1 X0) \Rightarrow (v1\_xxreal\_0 X1)) \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v2\_membered X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (( \\ & X1 = k1\_xxreal\_2 X0) \Leftrightarrow ((m1\_xxreal\_2 X1 X0) \wedge (\forall X2.(m1\_xxreal\_2 \\ & X2 X0) \Rightarrow (r1\_xxreal\_0 X1 X2)))))) \end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(v2\_membered\ X0) \Rightarrow (\forall X1.(v1\_xxreal\_0\ X1) \Rightarrow ((m1\_xxreal\_2\ X1\ X0) \Leftrightarrow (\forall X2.(v1\_xxreal\_0\ X2) \Rightarrow ((X2 \in X0) \Rightarrow (r1\_xxreal\_0\ X2\ X1))))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0\ X0) \wedge (v1\_xxreal\_0\ X1)) \Rightarrow (r1\_xxreal\_0\ X0\ X1) \vee (r1\_xxreal\_0\ X1\ X0) \quad (8)$$

**Theorem 1**

$$\forall X0.(v1\_xxreal\_0\ X0) \Rightarrow (\forall X1.(v1\_xxreal\_0\ X1) \Rightarrow ((\neg r1\_xxreal\_0\ X1\ X0) \Rightarrow (k1\_xxreal\_2\ (k2\_xxreal\_1\ X0\ X1) = X1)))$$