

t68\_xxreal\_3 (TMaf-  
BuoAUvF14gFag6NXpGaZZLMQpLFQFjr)

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Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k4\_xxreal\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k7\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k1\_xxreal\_0 : \iota$  be given. Let  $k2\_xxreal\_0 : \iota$  be given. Let  $k5\_xcmplx\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $np\_0 : \iota$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k7\_xcmplx\_0 X0 np\_1 = X0) \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (\forall X1.(v1\_xcmplx\_0 X1) \Rightarrow (\forall X2. \\ (v1\_xcmplx\_0 X2) \Rightarrow ((k3\_xcmplx\_0 X1 X0 = k3\_xcmplx\_0 X2 X0) \Rightarrow ((X0 = \\ k6\_numbers) \vee (X1 = X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\neg(\neg X0 \in k1\_numbers) \wedge ((X0 \neq k1\_xxreal\_0) \wedge (X0 \neq k2\_xxreal\_0))) \quad (5)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k7\_xcmplx\_0 np\_1 X0 = k5\_xcmplx\_0 X0) \quad (6)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_1) \wedge (m2\_subset\_1 \ np\_1 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_1 \ k1\_numbers)) \end{aligned} \quad (7)$$

Assume the following.

$$\neg v1\_xboole\_0 \ np\_1 \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_xcmplx\_0 \ X0) \wedge (v1\_xcmplx\_0 \ X1)) \Rightarrow ( \\ & k7\_xcmplx\_0 \ (k5\_xcmplx\_0 \ X0) \ (k5\_xcmplx\_0 \ X1) = k7\_xcmplx\_0 \ X1 \\ & \quad X0) \end{aligned} \quad (9)$$

Assume the following.

$$v1\_xboole\_0 \ np\_0 \quad (10)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (11)$$

Assume the following.

$$\forall X0. (v1\_xcmplx\_0 \ X0) \Rightarrow (k5\_xcmplx\_0 \ (k5\_xcmplx\_0 \ X0) = X0) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v1\_xreal\_0 \ X0) \wedge \\ & ((v1\_xreal\_0 \ X1) \wedge ((v1\_xcmplx\_0 \ X2) \wedge (v1\_xcmplx\_0 \ X3)))) \Rightarrow ((( \\ & X0 = X2) \wedge (X1 = X3)) \Rightarrow (k4\_xxreal\_3 \ X0 \ X1 = k3\_xcmplx\_0 \ X2 \ X3)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v1\_xboole\_0 \ X0) \wedge (v1\_xcmplx\_0 \ X0)) \wedge \\ & ((\neg v1\_xboole\_0 \ X1) \wedge (v1\_xcmplx\_0 \ X1))) \Rightarrow (\neg v1\_xboole\_0 \ (k7\_xcmplx\_0 \\ & \quad X0 \ X1)) \end{aligned} \quad (14)$$

Assume the following.

$$v3\_xxreal\_0 \ k2\_xxreal\_0 \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1\_xreal\_0 \ X0) \Rightarrow ((v1\_xcmplx\_0 \ (k5\_xcmplx\_0 \ X0)) \wedge \\ & (v1\_xreal\_0 \ (k5\_xcmplx\_0 \ X0))) \end{aligned} \quad (16)$$

Assume the following.

$$v2\_xxreal\_0 \ k1\_xxreal\_0 \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_xreal\_0 \ X0) \wedge (v1\_xreal\_0 \ X1)) \Rightarrow ((v1\_xxreal\_0 \\ & (k4\_xxreal\_3 \ X0 \ X1)) \wedge (v1\_xreal\_0 \ (k4\_xxreal\_3 \ X0 \ X1))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_xboole\_0 X0) \wedge (v1\_xxreal\_0 X0)) \wedge \\ & (v1\_xxreal\_0 X1)) \Rightarrow ((v1\_xboole\_0 (k4\_xxreal\_3 X0 X1)) \wedge (v1\_xxreal\_0 \\ & (k4\_xxreal\_3 X0 X1))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v1\_xboole\_0 X0) \wedge (v1\_xxreal\_0 X0)) \wedge \\ & ((\neg v1\_xboole\_0 X1) \wedge (v1\_xxreal\_0 X1))) \Rightarrow ((\neg v1\_xboole\_0 (k4\_xxreal\_3 \\ & X0 X1)) \wedge (v1\_xxreal\_0 (k4\_xxreal\_3 X0 X1))) \end{aligned} \quad (20)$$

Assume the following.

$$v1\_xxreal\_0 k2\_xxreal\_0 \quad (21)$$

Assume the following.

$$\neg v1\_xreal\_0 k1\_xxreal\_0 \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X0)) \wedge \\ & ((v1\_xxreal\_0 X1) \wedge (v2\_xxreal\_0 X1))) \Rightarrow ((v1\_xxreal\_0 (k4\_xxreal\_3 \\ & X0 X1)) \wedge (v2\_xxreal\_0 (k4\_xxreal\_3 X0 X1))) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 X0)) \wedge \\ & ((v1\_xxreal\_0 X1) \wedge (v3\_xxreal\_0 X1))) \Rightarrow ((v1\_xxreal\_0 (k4\_xxreal\_3 \\ & X0 X1)) \wedge (v2\_xxreal\_0 (k4\_xxreal\_3 X0 X1))) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X0)) \wedge \\ & ((v1\_xxreal\_0 X1) \wedge (v3\_xxreal\_0 X1))) \Rightarrow ((v1\_xxreal\_0 (k4\_xxreal\_3 \\ & X0 X1)) \wedge (v3\_xxreal\_0 (k4\_xxreal\_3 X0 X1))) \end{aligned} \quad (25)$$

Assume the following.

$$v1\_xxreal\_0 k1\_xxreal\_0 \quad (26)$$

Assume the following.

$$\neg v1\_xreal\_0 k2\_xxreal\_0 \quad (27)$$

Assume the following.

$$\forall X0. (v1\_xcmplx\_0 X0) \Rightarrow (v1\_xcmplx\_0 (k5\_xcmplx\_0 X0)) \quad (28)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \Rightarrow ( \\ & v1\_xxreal\_0 (k4\_xxreal\_3 X0 X1)) \end{aligned} \quad (29)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\
& (v1\_xxreal\_0 X2) \Rightarrow (((v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \Rightarrow ((X2 = \\
& \quad k4\_xxreal\_3 X0 X1) \Leftrightarrow (\exists X3.(v1\_xcmplx\_0 X3) \wedge (\exists X4. \\
& (v1\_xcmplx\_0 X4) \wedge ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = k3\_xcmplx\_0 X3 X4)))))) \wedge \\
& \quad ((\neg(\neg(v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \wedge (((v2\_xxreal\_0 X0) \wedge \\
& \quad (v2\_xxreal\_0 X1)) \vee ((v3\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 X1))) \wedge (\neg \\
& \quad X2 = k4\_xxreal\_3 X0 X1) \Leftrightarrow (X2 = k1\_xxreal\_0))) \wedge (\neg(\neg(v1\_xreal\_0 \\
& \quad X0) \wedge (v1\_xreal\_0 X1)) \wedge (((v2\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 X1)) \vee \\
& \quad ((v3\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X1)))) \wedge (\neg(X2 = k4\_xxreal\_3 X0 X1) \Leftrightarrow \\
& \quad (X2 = k2\_xxreal\_0))) \wedge (\neg(\neg(v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \wedge \\
& \quad ((\neg(\neg(v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \wedge (((v2\_xxreal\_0 X0) \wedge ( \\
& \quad v2\_xxreal\_0 X1)) \vee ((v3\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 X1)))) \wedge (\neg \\
& \quad (\neg(v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \wedge (((v2\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 \\
& \quad X1)) \vee ((v3\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X1)))) \wedge (\neg(X2 = k4\_xxreal\_3 \\
& \quad X0 X1) \Leftrightarrow (X2 = k6\_numbers))))))))) \\
& \tag{30}
\end{aligned}$$

Assume the following.

$$k1\_xxreal\_0 = k1\_numbers \tag{31}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \Rightarrow (k4\_xxreal\_3 X0 X1 = k4\_xxreal\_3 X1 X0) \tag{32}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v7\_ordinal1 X0) \tag{33}$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (\neg v2\_xxreal\_0 X0))) \tag{34}$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (\neg v3\_xxreal\_0 X0))) \Rightarrow ((v1\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X0)) \tag{35}$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (v1\_xxreal\_0 X0) \tag{36}$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (\neg v3\_xxreal\_0 X0))) \tag{37}$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (v1\_xcmplx\_0 X0) \quad (38)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_xxreal\_0 X0) \quad (39)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_xreal\_0 X0) \quad (40)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_xcmplx\_0 X0) \quad (41)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xcmplx\_0 X0) \quad (42)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \quad (43)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow ((k4\_xxreal\_3 X0 X1 = k4\_xxreal\_3 X0 X2) \Rightarrow ((X0 = \\ & k6\_numbers) \vee (X1 = X2)))))) \end{aligned}$$