

t20\_taxonom1  
(TMdmMT5zEejff9wvkSw2o9br4q97HVZ1S5)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v1\_taxonom1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_metric\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_metric\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_taxonom1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k1\_metric\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(v1\_xboole\_0 X0) \wedge ((X0 \neq X1) \wedge (v1\_xboole\_0 X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (k4\_tarski X0 X1 \in k2\_zfmisc\_1 X2 X3) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X3)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \neg((X0 \in X1) \wedge (v1\_xboole\_0 X1)) \quad (3)$$

Assume the following.

$$\forall X0. (v1\_xreal\_0 X0) \Rightarrow (\forall X1. (v1\_xreal\_0 X1) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee ((v3\_xxreal\_0 X0) \vee (v2\_xxreal\_0 X1)))))) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1)\Rightarrow((v1\_xboole\_0 X1)\vee (X0 \in X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1)\Rightarrow(m1\_subset\_1 X0 X1) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(\forall X1.(v1\_xreal\_0 X1)\Rightarrow(((r1\_xxreal\_0 X0 X1)\wedge(v2\_xxreal\_0 X0))\Rightarrow(v2\_xxreal\_0 X1))) \quad (8)$$

Assume the following.

$$m1\_subset\_1 k1\_xboole\_0 k4\_ordinal1 \quad (9)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (10)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (11)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (12)$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge(((v1\_funct\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) k1\_numbers))))\wedge(v1\_xreal\_0 X2)))\Rightarrow(m1\_subset\_1 (k1\_taxonom1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((v1\_funct\_1 X2)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1) k1\_numbers))))\wedge((m1\_subset\_1 X3 X0)\wedge(m1\_subset\_1 X4 X1)))\Rightarrow (m1\_subset\_1 (k1\_metric\_1 X0 X1 X2 X3 X4) k1\_numbers) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski X0 X1 = k2\_tarski (k2\_tarski X0 X1) (k1\_tarski X0) \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) k1\_numbers)))) \Rightarrow ((v1\_taxonom1 \\ X1 X0) \Leftrightarrow (\forall X2. (m1\_subset\_1 X2 X0) \Rightarrow (\forall X3. (m1\_subset\_1 \\ X3 X0) \Rightarrow (r1\_xreal\_0 k6\_numbers (k1\_metric\_1 X0 X0 X1 X2 X3)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) k1\_numbers)))) \Rightarrow \\ (\forall X2. (v1\_xreal\_0 X2) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 X0 X0)))) \Rightarrow ((X3 = k1\_taxonom1 X0 X1 X2) \Leftrightarrow (\forall X4. \\ (m1\_subset\_1 X4 X0) \Rightarrow (\forall X5. (m1\_subset\_1 X5 X0) \Rightarrow ((k4\_tarSKI \\ X4 X5 \in X3) \Leftrightarrow (r1\_xreal\_0 (k1\_metric\_1 X0 X0 X1 X4 X5) X2)))))))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) k1\_numbers)))) \Rightarrow ((v3\_metric\_1 \\ X1 X0) \Leftrightarrow (\forall X2. (m1\_subset\_1 X2 X0) \Rightarrow (\forall X3. (m1\_subset\_1 \\ X3 X0) \Rightarrow ((k1\_metric\_1 X0 X0 X1 X2 X3 = k6\_numbers) \Rightarrow (X2 = X3)))))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0. \forall X1. k2\_tarSKI X0 X1 = k2\_tarSKI X1 X0 \quad (20)$$

Assume the following.

$$\forall X0. (m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_numbers)) \Rightarrow (v3\_membered X0) \quad (21)$$

Assume the following.

$$\forall X0. ((v1\_xreal\_0 X0) \wedge (v3\_xreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xreal\_0 X0) \wedge (\neg v2\_xreal\_0 X0))) \quad (22)$$

Assume the following.

$$\forall X0. (v1\_xreal\_0 X0) \Rightarrow (v1\_xreal\_0 X0) \quad (23)$$

Assume the following.

$$\forall X0. ((v1\_xreal\_0 X0) \wedge (v2\_xreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xreal\_0 X0) \wedge (\neg v3\_xreal\_0 X0))) \quad (24)$$

Assume the following.

$$\forall X0. (m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \quad (25)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (26)$$

Assume the following.

$$\forall X0.(v3\_membered X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v1\_xreal\_0 X1)) \quad (27)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\ & m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) k1\_numbers)))) \Rightarrow \\ & (\forall X2.\forall X3.((v1\_taxonom1 X1 X0) \wedge ((v2\_metric\_1 X1 \\ & X0) \wedge ((v3\_metric\_1 X1 X0) \wedge (k4\_tarski X2 X3 \in k1\_taxonom1 X0 X1 k6\_numbers)))) \Rightarrow \\ & (X2 = X3))) \end{aligned}$$