

t4\_hfdiff\_1 (TMS-  
Gyd87XurMPoPSvzakDcKrRZCvxZF6A2D)

October 27, 2020

Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k26\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_rfunct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_taylor\_1 : \iota \Rightarrow \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k4\_rfunct\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k24\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_membered : \iota \Rightarrow o$  be given. Let  $v5\_membered : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1\_xcmplx\_0 X0) \wedge ((v1\_xcmplx\_0 X1) \wedge (v1\_xcmplx\_0 X2))) \Rightarrow (k3\_xcmplx\_0 (k3\_xcmplx\_0 X0 X1) X2 = k3\_xcmplx\_0 X0 (k3\_xcmplx\_0 X1 X2)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((r2\_relset\_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((m1\_subset\_1 X0 k1\_numbers) \wedge (v1\_xreal\_0 X1)) \Rightarrow (k8\_real\_1 X0 X1 = k3\_xcmplx\_0 X0 X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v3\_membered\ X1)\wedge((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow(k6\_rfunct\_1\ X0\ X1\ X2 = k4\_rfunct\_1\ X2)$$
(5)

Assume the following.

$$k5\_numbers = k4\_ordinal1$$
(6)

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v3\_membered\ X1)\wedge(((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(v1\_xreal\_0\ X3)))\Rightarrow(k26\_valued\_1\ X0\ X1\ X2\ X3 = k24\_valued\_1\ X2\ X3)$$
(7)

Assume the following.

$$(\neg v1\_xboole\_0\ k4\_ordinal1)\wedge(v3\_ordinal1\ k4\_ordinal1)$$
(8)

Assume the following.

$$v6\_membered\ k4\_ordinal1$$
(9)

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_valued\_0\ X0)))\Rightarrow(v1\_xcmplx\_0\ (k1\_funct\_1\ X0\ X1))$$
(10)

Assume the following.

$$v3\_membered\ k1\_numbers$$
(11)

Assume the following.

$$\neg v1\_xboole\_0\ k1\_numbers$$
(12)

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k1\_numbers)\wedge(v1\_xreal\_0\ X1))\Rightarrow(m1\_subset\_1\ (k8\_real\_1\ X0\ X1)\ k1\_numbers)$$
(13)

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v3\_membered\ X1)\wedge((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow(((v1\_funct\_1\ (k6\_rfunct\_1\ X0\ X1\ X2))\wedge(m1\_subset\_1\ (k6\_rfunct\_1\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k1\_numbers))))))$$
(14)

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (15)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_valued\_0 \ X0))) \Rightarrow \\ ((v1\_relat\_1 \ (k4\_rfunct\_1 \ X0)) \wedge (v1\_funct\_1 \ (k4\_rfunct\_1 \ X0))) \quad (16)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((v3\_membered \ X1) \wedge \\ (((v1\_funct\_1 \ X2) \wedge (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ X0 \ X1)))) \wedge (v1\_xreal\_0 \ X3))) \Rightarrow ((v1\_funct\_1 \ (k26\_valued\_1 \ X0 \ X1 \\ X2 \ X3)) \wedge (m1\_subset\_1 \ (k26\_valued\_1 \ X0 \ X1 \ X2 \ X3) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ X0 \ k1\_numbers)))) \quad (17)$$

Assume the following.

$$\forall X0. (v1\_int\_1 \ X0) \Rightarrow ((v1\_funct\_1 \ (k1\_taylor\_1 \ X0)) \wedge ((v1\_funct\_2 \\ (k1\_taylor\_1 \ X0) \ k1\_numbers \ k1\_numbers) \wedge (m1\_subset\_1 \ (k1\_taylor\_1 \\ X0) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k1\_numbers \ k1\_numbers)))))) \quad (18)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_valued\_0 \ X0))) \Rightarrow \\ (\forall X1. (v1\_xcmplx\_0 \ X1) \Rightarrow (\forall X2. ((v1\_relat\_1 \ X2) \wedge ( \\ v1\_funct\_1 \ X2)) \Rightarrow ((X2 = k24\_valued\_1 \ X0 \ X1) \Leftrightarrow ((k9\_xtuple\_0 \ X2 = k9\_xtuple\_0 \\ X0) \wedge (\forall X3. (X3 \in k9\_xtuple\_0 \ X2) \Rightarrow (k1\_funct\_1 \ X2 \ X3 = k3\_xcmplx\_0 \\ X1 \ (k1\_funct\_1 \ X0 \ X3))))))) \quad (19)$$

Assume the following.

$$\forall X0. (v3\_membered \ X0) \Rightarrow (v1\_membered \ X0) \quad (20)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 \ X0 \ X1))) \Rightarrow (v1\_relat\_1 \ X2) \quad (21)$$

Assume the following.

$$\forall X0. (v6\_membered \ X0) \Rightarrow (v5\_membered \ X0) \quad (22)$$

Assume the following.

$$\forall X0. \forall X1. (v1\_membered \ X1) \Rightarrow (\forall X2. (m1\_subset\_1 \\ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X1))) \Rightarrow (v1\_valued\_0 \ X2)) \quad (23)$$

Assume the following.

$$\forall X0.(v5\_membered\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow (v1\_int\_1\ X1)) \quad (24)$$

Assume the following.

$$\forall X0.(v3\_membered\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow (v1\_xreal\_0\ X1)) \quad (25)$$

Assume the following.

$$\forall X0.(v1\_membered\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow (v1\_xcmplx\_0\ X1)) \quad (26)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.(m1\_subset\_1\ X0\ k1\_numbers)\Rightarrow(\forall X1.(m1\_subset\_1 \\ &X1\ k1\_numbers)\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ k1\_numbers\ k5\_numbers)\Rightarrow \\ &(r2\_relset\_1\ k1\_numbers\ k1\_numbers\ (k26\_valued\_1\ k1\_numbers \\ &k1\_numbers\ (k6\_rfunct\_1\ k1\_numbers\ k1\_numbers\ (k1\_taylor\_1\ X2)) \\ &(k8\_real\_1\ X0\ X1))\ (k26\_valued\_1\ k1\_numbers\ k1\_numbers\ (k26\_valued\_1 \\ &k1\_numbers\ k1\_numbers\ (k6\_rfunct\_1\ k1\_numbers\ k1\_numbers\ (k1\_taylor\_1 \\ &X2))\ X1\ X0)))) \end{aligned}$$