

## t83\_mcart\_1

(TMHRLYzgq3MbtUzByBuQqw5zLRgBuQiSKrq)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_mcart\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_mcart\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_mcart\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_mcart\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xtuple\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \neg(X0 \in \\ & \quad k4\_zfmisc\_1 X1 X2 X3 X4) \wedge (\forall X5. \forall X6. \forall X7. \forall X8. \\ & \neg(X5 \in X1) \wedge ((X6 \in X2) \wedge ((X7 \in X3) \wedge ((X8 \in X4) \wedge (X0 = k6\_xtuple\_0 X5 X6 \\ & \quad X7 X8)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. (\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2. (\neg v1\_xboole\_0 X2) \Rightarrow (\forall X3. (\neg v1\_xboole\_0 X3) \Rightarrow \\ & (\forall X4. (m1\_subset\_1 X4 (k4\_zfmisc\_1 X0 X1 X2 X3)) \Rightarrow (\forall X5. \\ & \quad \forall X6. \forall X7. \forall X8. (X4 = k6\_xtuple\_0 X5 X6 X7 X8) \Rightarrow \\ & ((k4\_mcart\_1 X0 X1 X2 X3 X4 = X5) \wedge ((k5\_mcart\_1 X0 X1 X2 X3 X4 = X6) \wedge \\ & (k6\_mcart\_1 X0 X1 X2 X3 X4 = X7) \wedge (k7\_mcart\_1 X0 X1 X2 X3 X4 = X8)))))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1\_xboole\_0 \\ & \quad X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge ((\neg v1\_xboole\_0 X2) \wedge ((\neg v1\_xboole\_0 X3) \wedge \\ & (m1\_subset\_1 X4 (k4\_zfmisc\_1 X0 X1 X2 X3)))))) \Rightarrow (k7\_mcart\_1 X0 X1 \\ & \quad X2 X3 X4 = k2\_xtuple\_0 X4) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0 \\ & X0)\wedge((\neg v1\_xboole\_0 X1)\wedge((\neg v1\_xboole\_0 X2)\wedge((\neg v1\_xboole\_0 X3)\wedge \\ & (m1\_subset\_1 X4 (k4\_zfmisc\_1 X0 X1 X2 X3))))))\Rightarrow(k6\_mcart\_1 X0 X1 \\ & X2 X3 X4 = k5\_xtuple\_0 X4) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.k2\_xtuple\_0 (k6\_xtuple\_0 X0 X1 X2 X3) = X3 \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.k5\_xtuple\_0 (k6\_xtuple\_0 X0 X1 X2 X3) = X2 \quad (6)$$

Assume the following.

$$\forall X0.k5\_xtuple\_0 X0 = k2\_xtuple\_0 (k1\_xtuple\_0 X0) \quad (7)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow \\ & (\forall X2.(\neg v1\_xboole\_0 X2)\Rightarrow(\forall X3.(\neg v1\_xboole\_0 X3)\Rightarrow \\ & (\forall X4.((\neg v1\_xboole\_0 X4)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 \\ & X0))))\Rightarrow(\forall X5.((\neg v1\_xboole\_0 X5)\wedge(m1\_subset\_1 X5 (k1\_zfmisc\_1 \\ & X1))))\Rightarrow(\forall X6.((\neg v1\_xboole\_0 X6)\wedge(m1\_subset\_1 X6 (k1\_zfmisc\_1 \\ & X2))))\Rightarrow(\forall X7.((\neg v1\_xboole\_0 X7)\wedge(m1\_subset\_1 X7 (k1\_zfmisc\_1 \\ & X3))))\Rightarrow(\forall X8.(m1\_subset\_1 X8 (k4\_zfmisc\_1 X0 X1 X2 X3))\Rightarrow( \\ & (X8 \in k4\_zfmisc\_1 X4 X5 X6 X7)\Rightarrow((k4\_mcart\_1 X0 X1 X2 X3 X8 \in X4)\wedge((k5\_mcart\_1 \\ & X0 X1 X2 X3 X8 \in X5)\wedge((k6\_mcart\_1 X0 X1 X2 X3 X8 \in X6)\wedge(k7\_mcart\_1 X0 \\ & X1 X2 X3 X8 \in X7)))))))))) \end{aligned}$$