t22_facirc_1 (TMZB1DyUi36Pi21vdHnrFyt5P8bQRU28hqU)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $k3\_msafree2 : \iota \Rightarrow \iota$ be given. Let $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ 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 $v1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge (v1\_funct\_1\ X1)) \Rightarrow (r1\_tarski\ (k10\_xtuple\_0\ X0) (k10\_xtuple\_0\ (k1\_funct\_4\ X1\ X0)))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1) \wedge (v5\_relat\_1\ X1\ X0)) \Rightarrow (k2\_relset\_1\ X0\ X1 = k10\_xtuple\_0\ X1) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0) \Rightarrow ((v1\_funct\_1\ (u2\_msualg\_1\ X0)) \wedge ((v1\_funct\_2\ (u2\_msualg\_1\ X0)\ (u4\_struct\_0\ X0)\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ (u2\_msualg\_1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u4\_struct\_0\ X0)\ (u1\_struct\_0\ X0))))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \wedge ((\neg v2\_struct\_0\ X1) \wedge (l1\_msualg\_1\ X1))) \Rightarrow ((\neg v2\_struct\_0\ (k2\_circcomb\ X0\ X1)) \wedge ((v1\_msualg\_1\ (k2\_circcomb\ X0\ X1)) \wedge (l1\_msualg\_1\ (k2\_circcomb\ X0\ X1)))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski\ X0\ X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow (X2 \in X1)) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(k3\_msafree2\ X0 = k2\_relset\_1\ (u1\_struct\_0\ X0)\ (u2\_msualg\_1\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_msualg\_1\ X1))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((v1\_msualg\_1\ X2)\wedge(l1\_msualg\_1\ X2)))\Rightarrow((X2 = k2\_circcomb\ X0\ X1)\Leftrightarrow((u1\_struct\_0\ X2 = k2\_xboole\_0\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge((u4\_struct\_0\ X2 = k2\_xboole\_0\ (u4\_struct\_0\ X0)\ (u4\_struct\_0\ X1))\wedge((u1\_msualg\_1\ X2 = k1\_funct\_4\ (u1\_msualg\_1\ X0)\ (u1\_msualg\_1\ X1))\wedge(u2\_msualg\_1\ X2 = k1\_funct\_4\ (u2\_msualg\_1\ X0)\ (u2\_msualg\_1\ X1)))))))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow((v4\_relat\_1\ X2\ X0)\wedge(v5\_relat\_1\ X2\ X1)) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(v1\_relat\_1\ X2) \tag{9}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_msualg\_1\ X1))\Rightarrow(\forall X2.(X2 \in k3\_msafree2\ X1)\Rightarrow(X2 \in k3\_msafree2\ (k2\_circcomb\ X0\ X1))))$$