t55_waybel_4 (TMc4Ge97NTMtiX9BaRSsJ4vyLAFieSyvCEr)

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Let $l1\_orders\_2 : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $r3\_waybel\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $u1\_orders\_2 : \iota \Rightarrow \iota$ be given. Let $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Let $r2\_waybel\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k4\_tarski\ X0\ X1 \in k2\_zfmisc\_1\ X2\ X3) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X3)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X2))) \Rightarrow (m1\_subset\_1\ X0\ X2) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ X1)) \Leftrightarrow (r1\_tarski\ X0\ X1) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski\ X0\ X0 \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.v1\_relat\_1\ (k2\_zfmisc\_1\ X0\ X1) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0) \Rightarrow (m1\_subset\_1\ (u1\_orders\_2\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow ((r2\_orders\_2\ X0\ X1\ X2) \Leftrightarrow ((r1\_orders\_2\ X0\ X1\ X2) \wedge (X1 \neq X2))))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski\ X0\ X1 = k2\_tarski\ (k2\_tarski\ X0\ X1)\ (k1\_tarski\ X0) \tag{8}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((r1\_orders\_2\ X0\ X1\ X2)\Leftrightarrow(k4\_tarski\ X1\ X2 \in u1\_orders\_2\ X0)))) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski\ X0\ X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow(X2 \in X1)) \tag{10}$$

Assume the following.

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(\forall X1.\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((r3\_waybel\_4\ X0\ X1\ X2)\Leftrightarrow(r2\_waybel\_4\ X1\ X2\ (u1\_orders\_2\ X0)))) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(v1\_relat\_1\ X2)\Rightarrow((r2\_waybel\_4\ X0\ X1\ X2)\Leftrightarrow((X1 \in X0)\wedge(\forall X3.\neg(X3 \in X0)\wedge((X3 \neq X1)\wedge(k4\_tarski\ X1\ X3 \in X2))))) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.k2\_tarski\ X0\ X1 = k2\_tarski\ X1\ X0 \tag{13}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(v1\_relat\_1\ X1)) \tag{14}$$

Theorem 1

$$\forall X0.(l1\_orders\_2\ X0)\Rightarrow(\forall X1.\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((r3\_waybel\_4\ X0\ X1\ X2)\Leftrightarrow((X2 \in X1)\wedge(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\neg(X3 \in X1)\wedge(r2\_orders\_2\ X0\ X2\ X3))))))$$