t48_waybel34 (TMKVX8Vm3Lf3RCTjpHZQAh1k7x9TdgF3PTK)

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Let $v2\_setfam\_1 : \iota \Rightarrow o$ be given. Let $v3\_orders\_2 : \iota \Rightarrow o$ be given. Let $v4\_orders\_2 : \iota \Rightarrow o$ be given. Let $v5\_orders\_2 : \iota \Rightarrow o$ be given. Let $v1\_lattice3 : \iota \Rightarrow o$ be given. Let $v2\_lattice3 : \iota \Rightarrow o$ be given. Let $l1\_orders\_2 : \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_waybel34 : \iota \Rightarrow \iota$ be given. Let $v1\_orders\_2 : \iota \Rightarrow o$ be given. Let $v3\_lattice3 : \iota \Rightarrow o$ be given. Let $v3\_waybel\_3 : \iota \Rightarrow o$ be given. Let $k8\_waybel34 : \iota \Rightarrow \iota$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $m1\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v11\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v12\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v3\_yellow21 : \iota \Rightarrow o$ be given. Let $k4\_yellow21 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_yellow21 : \iota \Rightarrow \iota$ be given. Let $v2\_yellow21 : \iota \Rightarrow o$ be given. Let $k3\_yellow21 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_waybel34 : \iota \Rightarrow \iota$ be given. Let $v6\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v3\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2\_altcat\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(\neg v2\_setfam\_1\ X0) \Rightarrow (\forall X1.((v3\_orders\_2\ X1) \wedge ((v4\_orders\_2\ X1) \wedge ((v5\_orders\_2\ X1) \wedge ((v1\_lattice3\ X1) \wedge ((v2\_lattice3\ X1) \wedge (l1\_orders\_2\ X1)))))) \Rightarrow ((m1\_subset\_1\ X1\ (u1\_struct\_0\ (k8\_waybel34\ X0))) \Leftrightarrow ((v1\_orders\_2\ X1) \wedge ((v3\_lattice3\ X1) \wedge (u1\_struct\_0\ X1 \in X0)))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l2\_altcat\_1\ X0)) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge (m1\_altcat\_2\ X1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X1)) \Rightarrow (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0) \wedge ((v2\_altcat\_1\ X0) \wedge ((v11\_altcat\_1\ X0) \wedge ((v12\_altcat\_1\ X0) \wedge ((v3\_yellow21\ X0) \wedge (l2\_altcat\_1\ X0)))))) \wedge (m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))) \Rightarrow (k4\_yellow21\ X0\ X1 = k1\_yellow21\ X1) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge((v2\_yellow21\ X0)\wedge(l2\_altcat\_1\ X0))))))\wedge(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)))\Rightarrow(k3\_yellow21\ X0\ X1 = k1\_yellow21\ X1) \tag{4}$$

Assume the following.

$$\forall X0.(\neg v2\_setfam\_1\ X0)\Rightarrow((\neg v2\_struct\_0\ (k4\_waybel34\ X0))\wedge((v2\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v6\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v11\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v12\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v2\_yellow21\ (k4\_waybel34\ X0))\wedge(v3\_yellow21\ (k4\_waybel34\ X0))))))))) \tag{5}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0)\Rightarrow(\forall X1.(m1\_altcat\_2\ X1\ X0)\Rightarrow(l2\_altcat\_1\ X1)) \tag{6}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow((\neg v2\_struct\_0\ (k8\_waybel34\ X0))\wedge((v2\_altcat\_1\ (k8\_waybel34\ X0))\wedge((v6\_altcat\_1\ (k8\_waybel34\ X0))\wedge((v3\_altcat\_2\ (k8\_waybel34\ X0)\ (k4\_waybel34\ X0))\wedge(m1\_altcat\_2\ (k8\_waybel34\ X0)\ (k4\_waybel34\ X0)))))) \tag{7}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow((\neg v2\_struct\_0\ (k4\_waybel34\ X0))\wedge((v2\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v6\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v11\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v12\_altcat\_1\ (k4\_waybel34\ X0))\wedge((v2\_yellow21\ (k4\_waybel34\ X0))\wedge(l2\_altcat\_1\ (k4\_waybel34\ X0))))))))) \tag{8}$$

Assume the following.

$$\forall X0.(\neg v2\_setfam\_1\ X0)\Rightarrow((\neg v2\_struct\_0\ (k10\_waybel34\ X0))\wedge((v2\_altcat\_1\ (k10\_waybel34\ X0))\wedge((v6\_altcat\_1\ (k10\_waybel34\ X0))\wedge((v2\_altcat\_2\ (k10\_waybel34\ X0)\ (k8\_waybel34\ X0))\wedge((v3\_altcat\_2\ (k10\_waybel34\ X0)\ (k8\_waybel34\ X0))\wedge(m1\_altcat\_2\ (k10\_waybel34\ X0)\ (k8\_waybel34\ X0))))))) \tag{9}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge((v2\_yellow21\ X0)\wedge(l2\_altcat\_1\ X0))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(k3\_yellow21\ X0\ X1 = X1)) \tag{10}$$

Assume the following.

$$\forall X0.(\neg v2\_setfam\_1\ X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v6\_altcat\_1\ X1)\wedge((v2\_altcat\_2\ X1\ (k8\_waybel34\ X0))\wedge((v3\_altcat\_2\ X1\ (k8\_waybel34\ X0))\wedge(m1\_altcat\_2\ X1\ (k8\_waybel34\ X0)))))))\Rightarrow((X1 = k10\_waybel34\ X0)\Leftrightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ (k8\_waybel34\ X0)))\Rightarrow((m1\_subset\_1\ X2\ (u1\_struct\_0\ X1))\Leftrightarrow(v3\_waybel\_3\ (k4\_yellow21\ (k8\_waybel34\ X0)\ X2))))))) \tag{11}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge((v2\_yellow21\ X0)\wedge(l2\_altcat\_1\ X0))))))\Rightarrow(\forall X1.(m1\_altcat\_2\ X1\ X0)\Rightarrow(((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge(v3\_altcat\_2\ X1\ X0)))\Rightarrow((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v3\_altcat\_2\ X1\ X0)\wedge(v2\_yellow21\ X1)))))) \tag{12}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0))))\Rightarrow(\forall X1.(m1\_altcat\_2\ X1\ X0)\Rightarrow(((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge(v3\_altcat\_2\ X1\ X0)))\Rightarrow((\neg v2\_struct\_0\ X1)\wedge(v12\_altcat\_1\ X1)))) \tag{13}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0))))\Rightarrow(\forall X1.(m1\_altcat\_2\ X1\ X0)\Rightarrow(((\neg v2\_struct\_0\ X1)\wedge(v2\_altcat\_1\ X1))\Rightarrow((\neg v2\_struct\_0\ X1)\wedge(v11\_altcat\_1\ X1)))) \tag{14}$$

Assume the following.

$$\forall X0.(\neg v2\_setfam\_1\ X0)\Rightarrow(\neg v1\_xboole\_0\ X0) \tag{15}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge((v3\_yellow21\ X0)\wedge(l2\_altcat\_1\ X0))))))\Rightarrow(\forall X1.(m1\_altcat\_2\ X1\ X0)\Rightarrow(((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge(v3\_altcat\_2\ X1\ X0)))\Rightarrow((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v3\_altcat\_2\ X1\ X0)\wedge(v3\_yellow21\ X1)))))) \tag{16}$$

Theorem 1

$$\forall X0.(\neg v2\_setfam\_1\ X0)\Rightarrow(\forall X1.((v3\_orders\_2\ X1)\wedge((v4\_orders\_2\ X1)\wedge((v5\_orders\_2\ X1)\wedge((v1\_lattice3\ X1)\wedge((v2\_lattice3\ X1)\wedge(l1\_orders\_2\ X1)))))))\Rightarrow((u1\_struct\_0\ X1 \in X0)\Rightarrow((m1\_subset\_1\ X1\ (u1\_struct\_0\ (k10\_waybel34\ X0)))\Leftrightarrow((v1\_orders\_2\ X1)\wedge((v3\_lattice3\ X1)\wedge(v3\_waybel\_3\ X1))))))$$