

t20_heyting2 (TMcpp- CAL28p2nCyUdpdaQuo9piXqxDFQHx)

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Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_substlat : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_heyting2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (3)$$

Assume the following.

$$\forall X0. k4_xboole_0 k1_xboole_0 X0 = k1_xboole_0 \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 X0 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.k6_subset_1 X0 X1 = k4_xboole_0 X0 X1 \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(v1_finset_1 X1) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (u1_struct_0 (k5_substlat X0 X1))) \Rightarrow (\forall X3.(m1_subset_1 \\ X3 (u1_struct_0 (k5_substlat X0 X1))) \Rightarrow ((\forall X4.\neg(X4 \in X2) \wedge \\ (\forall X5.\neg(X5 \in X3) \wedge (r1_tarski X5 X4))) \Rightarrow (r3_lattices (k5_substlat \\ X0 X1) X2 X3)))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v2_struct_0 (k5_substlat X0 X1)) \wedge (v3_lattices (k5_substlat X0 X1)) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \quad (11)$$

Assume the following.

$$\forall X0.(l2_lattices X0) \Rightarrow (l1_struct_0 X0) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v1_finset_1 X1) \wedge (m1_subset_1 \\ X2 (u1_struct_0 (k5_substlat X0 X1)))) \Rightarrow ((v1_funct_1 (k7_heyting2 \\ X0 X1 X2)) \wedge ((v1_funct_2 (k7_heyting2 X0 X1 X2) (u1_struct_0 (k5_substlat \\ X0 X1)) (u1_struct_0 (k5_substlat X0 X1))) \wedge (m1_subset_1 (k7_heyting2 \\ X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 (k5_substlat \\ X0 X1)) (u1_struct_0 (k5_substlat X0 X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.m1_subset_1 (k6_subset_1 X0 X1) (k1_zfmisc_1 X0) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(v3_lattices (k5_substlat X0 X1)) \wedge (l3_lattices (k5_substlat X0 X1)) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0))\Rightarrow(m1_subset_1 (\\ & k3_funct_2 X0 X1 X2 X3) X1) \end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1_finset_1 X1)\Rightarrow(\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 (k5_substlat X0 X1)))\Rightarrow(\forall X3.((v1_funct_1 \\ & X3)\wedge((v1_funct_2 X3 (u1_struct_0 (k5_substlat X0 X1)) (u1_struct_0 \\ & (k5_substlat X0 X1)))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 (k5_substlat X0 X1)) (u1_struct_0 (k5_substlat X0 \\ & X1))))))\Rightarrow((X3 = k7_heyting2 X0 X1 X2)\Leftrightarrow(\forall X4.(m1_subset_1 \\ & X4 (u1_struct_0 (k5_substlat X0 X1)))\Rightarrow(k3_funct_2 (u1_struct_0 \\ & (k5_substlat X0 X1)) (u1_struct_0 (k5_substlat X0 X1)) X3 X4 = k6_subset_1 \\ & X2 X4)))))) \end{aligned} \tag{17}$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.(v1_finset_1 X1)\Rightarrow(\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 (k5_substlat X0 X1)))\Rightarrow(\forall X3.(m1_subset_1 \\ & X3 (u1_struct_0 (k5_substlat X0 X1)))\Rightarrow(r3_lattices (k5_substlat \\ & X0 X1) (k3_funct_2 (u1_struct_0 (k5_substlat X0 X1)) (u1_struct_0 \\ & (k5_substlat X0 X1)) (k7_heyting2 X0 X1 X2) X3) X2))) \end{aligned}$$