

## t32\_heyting3

(TMR7J6nvDkoA5rhwtGNT889zbc5ZsisZ8nU)

October 27, 2020

Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_heyting3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k5\_finsub\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_substlat : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_substlat : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_lattices : \iota \Rightarrow o$  be given. Let  $k5\_substlat : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v10\_lattices : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_lattices : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_lattice3 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_lattices : \iota \Rightarrow \iota$  be given. Let  $k3\_substlat : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_lattices : \iota \Rightarrow \iota$  be given. Let  $k4\_substlat : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_lattice3 : \iota \Rightarrow \iota$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  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.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k5\_finsub\_1 \\ & (k4\_partfun1 X0 X1))) \Rightarrow (\forall X3. \forall X4. ((X2 \in k1\_substlat \\ & X0 X1) \wedge ((X3 \in X2) \wedge ((X4 \in X2) \wedge (r1\_tarski X3 X4)))) \Rightarrow (X3 = X4)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (4)$$

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.

$$\forall X0.\exists X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\wedge(v1\_xboole\_0 X1) \quad (6)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\neg(X0\neq k1\_tarSKI k1\_xboole\_0)\wedge ((k1\_xboole\_0 \in X0)\wedge(\forall X1.\neg(X1 \in X0)\wedge(X1\neq k1\_xboole\_0)))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1 X2 (k1\_substlat X0 X1))\wedge(m1\_subset\_1 X3 (k1\_substlat X0 X1)))\Rightarrow(k2\_substlat X0 X1 X2 X2 = X2) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))\Rightarrow(\forall X2.\forall X3.(g1\_orders\_2 X0 X1 = g1\_orders\_2 X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(v3\_lattices (k5\_substlat X0 X1))\wedge(v10\_lattices (k5\_substlat X0 X1)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v2\_struct\_0 (k5\_substlat X0 X1))\wedge(v3\_lattices (k5\_substlat X0 X1)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\neg v1\_xboole\_0 (k1\_substlat X0 X1) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(v3\_lattices (k5\_substlat X0 X1))\wedge(l3\_lattices (k5\_substlat X0 X1)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1 X2 (k1\_substlat X0 X1))\wedge(m1\_subset\_1 X3 (k1\_substlat X0 X1)))\Rightarrow(m1\_subset\_1 (k2\_substlat X0 X1 X2 X3) (k5\_finsub\_1 (k4\_partfun1 X0 X1))) \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices \\ X0))) \Rightarrow ((v1\_partfun1 (k2\_lattice3 X0) (u1\_struct\_0 X0)) \wedge ((v1\_relat\_2 \\ (k2\_lattice3 X0)) \wedge ((v4\_relat\_2 (k2\_lattice3 X0)) \wedge ((v8\_relat\_2 \\ (k2\_lattice3 X0)) \wedge (m1\_subset\_1 (k2\_lattice3 X0) (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))) \Rightarrow ((v1\_orders\_2 (g1\_orders\_2 X0 X1)) \wedge (l1\_orders\_2 (g1\_orders\_2 X0 X1))) \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((v3\_lattices X2) \wedge (l3\_lattices \\ X2)) \Rightarrow ((X2 = k5\_substlat X0 X1) \Leftrightarrow ((u1\_struct\_0 X2 = k1\_substlat X0 \\ X1) \wedge (\forall X3. (m2\_subset\_1 X3 (k5\_finsub\_1 (k4\_partfun1 X0 \\ X1)) (k1\_substlat X0 X1)) \Rightarrow (\forall X4. (m2\_subset\_1 X4 (k5\_finsub\_1 \\ (k4\_partfun1 X0 X1)) (k1\_substlat X0 X1)) \Rightarrow ((k1\_binop\_1 (u2\_lattices \\ X2) X3 X4 = k3\_substlat X0 X1 (k2\_substlat X0 X1 X3 X4)) \wedge (k1\_binop\_1 \\ (u1\_lattices X2) X3 X4 = k3\_substlat X0 X1 (k4\_substlat X0 X1 X3 X4))))))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v10\_lattices X0) \wedge (l3\_lattices X0))) \Rightarrow (k3\_lattice3 X0 = g1\_orders\_2 (u1\_struct\_0 X0) (k2\_lattice3 X0)) \quad (18)$$

Assume the following.

$$\forall X0. \forall X1. k1\_heyting3 X0 X1 = k3\_lattice3 (k5\_substlat X0 X1) \quad (19)$$

Assume the following.

$$\forall X0. (l1\_orders\_2 X0) \Rightarrow ((v1\_orders\_2 X0) \Rightarrow (X0 = g1\_orders\_2 (u1\_struct\_0 X0) (u1\_orders\_2 X0))) \quad (20)$$

**Theorem 1**

$$\forall X0. (m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 (k1\_heyting3 k5\_numbers (k6\_domain\_1 k5\_numbers X0)))) \Rightarrow ((k1\_xboole\_0 \in X1) \Rightarrow (X1 = k1\_tarski k1\_xboole\_0)))$$