

l30_binop_2

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Let $r3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_numbers : \iota$ be given. Let $c2_binop_2 : \iota$ be given. Let $k39_binop_2 : \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ 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. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_rat_1 : \iota \Rightarrow o$ be given. Let $k15_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $r1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k2_xcmplx_0 X0 k6_numbers = X0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X1) \wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((m1_subset_1 X2 X0) \wedge \\ & (m1_subset_1 X3 X0))) \Rightarrow (k3_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((v1_rat_1 X0) \wedge (v1_rat_1 X1)) \Rightarrow (k15_binop_2 X0 X1 = k2_xcmplx_0 X0 X1) \quad (3)$$

Assume the following.

$$\neg v1_xboole_0 k3_numbers \quad (4)$$

Assume the following.

$$\begin{aligned} & (v1_funct_1 k39_binop_2) \wedge ((v1_funct_2 k39_binop_2 (k2_zfmisc_1 \\ & k3_numbers k3_numbers) k3_numbers) \wedge (m1_subset_1 k39_binop_2 \\ & (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k3_numbers k3_numbers) \\ & k3_numbers)))) \end{aligned} \quad (5)$$

Assume the following.

$$m1_subset_1 \ c2_binop_2 \ k3_numbers \quad (6)$$

Assume the following.

$$c2_binop_2 = k6_numbers \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (m1_subset_1 \ X1 \ X0) \Rightarrow (\forall X2. ((v1_funct_1 \\ X2) \wedge ((v1_funct_2 \ X2 \ (k2_zfmisc_1 \ X0 \ X0) \ X0) \wedge (m1_subset_1 \ X2 \ (k1_zfmisc_1 \\ (k2_zfmisc_1 \ (k2_zfmisc_1 \ X0 \ X0) \ X0)))))) \Rightarrow ((r3_binop_1 \ X0 \ X1 \ X2) \Leftrightarrow \\ ((r1_binop_1 \ X0 \ X1 \ X2) \wedge (r2_binop_1 \ X0 \ X1 \ X2)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1_xboole_0 \ X0) \Rightarrow (\forall X1. (m1_subset_1 \ X1 \ X0) \Rightarrow \\ (\forall X2. ((v1_funct_1 \ X2) \wedge ((v1_funct_2 \ X2 \ (k2_zfmisc_1 \ X0 \\ X0) \ X0) \wedge (m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k2_zfmisc_1 \\ X0 \ X0) \ X0)))))) \Rightarrow ((r2_binop_1 \ X0 \ X1 \ X2) \Leftrightarrow (\forall X3. (m1_subset_1 \\ X3 \ X0) \Rightarrow (k3_binop_1 \ X0 \ X2 \ X3 \ X1 = X3)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0. (\neg v1_xboole_0 \ X0) \Rightarrow (\forall X1. (m1_subset_1 \ X1 \ X0) \Rightarrow \\ (\forall X2. ((v1_funct_1 \ X2) \wedge ((v1_funct_2 \ X2 \ (k2_zfmisc_1 \ X0 \\ X0) \ X0) \wedge (m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k2_zfmisc_1 \\ X0 \ X0) \ X0)))))) \Rightarrow ((r1_binop_1 \ X0 \ X1 \ X2) \Leftrightarrow (\forall X3. (m1_subset_1 \\ X3 \ X0) \Rightarrow (k3_binop_1 \ X0 \ X2 \ X1 \ X3 = X3)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_funct_1 \ X0) \wedge ((v1_funct_2 \ X0 \ (k2_zfmisc_1 \ k3_numbers \\ k3_numbers) \ k3_numbers) \wedge (m1_subset_1 \ X0 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \\ (k2_zfmisc_1 \ k3_numbers \ k3_numbers) \ k3_numbers)))))) \Rightarrow ((X0 = k39_binop_2) \Leftrightarrow \\ (\forall X1. (v1_rat_1 \ X1) \Rightarrow (\forall X2. (v1_rat_1 \ X2) \Rightarrow (k1_binop_1 \\ X0 \ X1 \ X2 = k15_binop_2 \ X1 \ X2)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xcmplx_0 \ X0) \wedge (v1_xcmplx_0 \ X1)) \Rightarrow (k2_xcmplx_0 \ X0 \ X1 = k2_xcmplx_0 \ X1 \ X0) \quad (12)$$

Assume the following.

$$\forall X0. (v1_xreal_0 \ X0) \Rightarrow (v1_xcmplx_0 \ X0) \quad (13)$$

Assume the following.

$$\forall X0. (v1_rat_1 \ X0) \Rightarrow (v1_xreal_0 \ X0) \quad (14)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k3_numbers)\Rightarrow(v1_rat_1 X0) \quad (15)$$

Theorem 1 $r3_binop_1 k3_numbers c2_binop_2 k39_binop_2$.