

## l33\_binop\_2

(TMX49UVahJ9qQxJxMoSFp7Bq12Xamr5tRQT)

October 27, 2020

Let  $r3\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k47\_binop\_2 : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k23\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  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. Assume the following.

$$m1\_subset\_1 \ k1\_xboole\_0 \ k4\_ordinal1 \tag{1}$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 \ X0) \Rightarrow (k2\_xcmplx\_0 \ X0 \ k6\_numbers = X0) \tag{2}$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \tag{3}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 \ X1) \wedge \\ & ((v1\_funct\_2 \ X1 \ (k2\_zfmisc\_1 \ X0 \ X0) \ X0) \wedge (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X0) \ X0)))))) \wedge ((m1\_subset\_1 \ X2 \ X0) \wedge \\ & (m1\_subset\_1 \ X3 \ X0))) \Rightarrow (k3\_binop\_1 \ X0 \ X1 \ X2 \ X3 = k1\_binop\_1 \ X1 \ X2 \ X3) \end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 \ X0) \wedge (v7\_ordinal1 \ X1)) \Rightarrow (k23\_binop\_2 \ X0 \ X1 = k2\_xcmplx\_0 \ X0 \ X1) \tag{6}$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (7)$$

Assume the following.

$$\begin{aligned} & (v1\_funct\_1 \ k47\_binop\_2) \wedge ((v1\_funct\_2 \ k47\_binop\_2 \ (k2\_zfmisc\_1 \\ & \ k5\_numbers \ k5\_numbers) \ k5\_numbers) \wedge (m1\_subset\_1 \ k47\_binop\_2 \\ & (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ k5\_numbers) \\ & \ k5\_numbers)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_subset\_1 \ X1 \ X0) \Rightarrow (\forall X2. ((v1\_funct\_1 \\ & \ X2) \wedge ((v1\_funct\_2 \ X2 \ (k2\_zfmisc\_1 \ X0 \ X0) \ X0) \wedge (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \\ & \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X0) \ X0)))) \Rightarrow ((r3\_binop\_1 \ X0 \ X1 \ X2) \Leftrightarrow \\ & ((r1\_binop\_1 \ X0 \ X1 \ X2) \wedge (r2\_binop\_1 \ X0 \ X1 \ X2)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_funct\_1 \ X0) \wedge ((v1\_funct\_2 \ X0 \ (k2\_zfmisc\_1 \ k5\_numbers \\ & \ k5\_numbers) \ k5\_numbers) \wedge (m1\_subset\_1 \ X0 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ & \ (k2\_zfmisc\_1 \ k5\_numbers \ k5\_numbers) \ k5\_numbers)))) \Rightarrow ((X0 = k47\_binop\_2) \Leftrightarrow \\ & (\forall X1. (v7\_ordinal1 \ X1) \Rightarrow (\forall X2. (v7\_ordinal1 \ X2) \Rightarrow ( \\ & \ k1\_binop\_1 \ X0 \ X1 \ X2 = k23\_binop\_2 \ X1 \ X2)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 \ X0) \Rightarrow (\forall X1. (m1\_subset\_1 \ X1 \ X0) \Rightarrow \\ & (\forall X2. ((v1\_funct\_1 \ X2) \wedge ((v1\_funct\_2 \ X2 \ (k2\_zfmisc\_1 \ X0 \\ & \ X0) \ X0) \wedge (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ & \ X0 \ X0) \ X0)))) \Rightarrow ((r2\_binop\_1 \ X0 \ X1 \ X2) \Leftrightarrow (\forall X3. (m1\_subset\_1 \\ & \ X3 \ X0) \Rightarrow (k3\_binop\_1 \ X0 \ X2 \ X3 \ X1 = X3)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 \ X0) \Rightarrow (\forall X1. (m1\_subset\_1 \ X1 \ X0) \Rightarrow \\ & (\forall X2. ((v1\_funct\_1 \ X2) \wedge ((v1\_funct\_2 \ X2 \ (k2\_zfmisc\_1 \ X0 \\ & \ X0) \ X0) \wedge (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \\ & \ X0 \ X0) \ X0)))) \Rightarrow ((r1\_binop\_1 \ X0 \ X1 \ X2) \Leftrightarrow (\forall X3. (m1\_subset\_1 \\ & \ X3 \ X0) \Rightarrow (k3\_binop\_1 \ X0 \ X2 \ X1 \ X3 = X3)))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. ((v7\_ordinal1 \ X0) \wedge (v7\_ordinal1 \ X1)) \Rightarrow (k23\_binop\_2 \ X0 \ X1 = k23\_binop\_2 \ X1 \ X0) \quad (13)$$

Assume the following.

$$\forall X0. (m1\_subset\_1 \ X0 \ k4\_ordinal1) \Rightarrow (v7\_ordinal1 \ X0) \quad (14)$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(v1\_xcmplx\_0\ X0) \quad (15)$$

**Theorem 1** *r3\_binop\_1 k5\_numbers k6\_numbers k47\_binop\_2.*