

t20_binop_1 (TMb-
SWzEXkQnMf9CNxo4bfHp4ZYCVGBu4akX)

October 27, 2020

Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((\\ v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (((k9_xtuple_0 X0 = k9_xtuple_0 \\ X1) \wedge (\forall X2.(X2 \in k9_xtuple_0 X0) \Rightarrow (k1_funct_1 X0 X2 = k1_funct_1 \\ X1 X2))) \Rightarrow (X0 = X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. ((m1_subset_1 X2 \\ (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1)))) \Rightarrow ((r2_relset_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (\\ k1_relset_1 X0 X1 = k9_xtuple_0 X1) \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (\\ m1_subset_1 (k1_relset_1 X0 X1) (k1_zfmisc_1 X0)) \tag{4}$$

Assume the following.

$$\forall X0. (v1_relat_1 X0) \Leftrightarrow (\forall X1. \neg (X1 \in X0) \wedge (\forall X2. \\ \forall X3. X1 \neq k4_tarski X2 X3)) \tag{5}$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. \forall X2. k1_binop_1 X0 X1 X2 = k1_funct_1 X0 (k4_tarski X1 X2)) \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (8)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v1_funct_1 X3) \wedge \\ & (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) \\ & X2)))) \Rightarrow (\forall X4. ((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) X2)))) \Rightarrow (((r2_relset_1 X0 X1 (\\ & k1_relset_1 (k2_zfmisc_1 X0 X1) X3) (k1_relset_1 (k2_zfmisc_1 \\ & X0 X1) X4)) \wedge (\forall X5. \forall X6. (k4_tarski X5 X6 \in k1_relset_1 \\ & (k2_zfmisc_1 X0 X1) X3)) \Rightarrow (k1_binop_1 X3 X5 X6 = k1_binop_1 X4 X5 X6))) \Rightarrow \\ & (r2_relset_1 (k2_zfmisc_1 X0 X1) X2 X3 X4)) \end{aligned}$$