# t19_binop_1 (TMS-grVWr3zYstYoB6stGvrmmwUsFLxBtLwY)

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Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_funct\_1 : \iota \Rightarrow o$ be given. Let $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k4\_tarski\ X0\ X1 \in k2\_zfmisc\_1\ X2\ X3) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X3)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\neg(r1\_tarski\ X0\ (k2\_zfmisc\_1\ X1\ X2)) \wedge ((X3 \in X0) \wedge (\forall X4.\forall X5.\neg(X4 \in X1) \wedge ((X5 \in X2) \wedge (X3 = k4\_tarski\ X4\ X5)))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski\ X0\ X0 \tag{3}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.\forall X2.\ k1\_binop\_1\ X0\ X1\ X2 = k1\_funct\_1\ X0\ (k4\_tarski\ X1\ X2)) \tag{4}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow ((v3\_funct\_1\ X0) \Leftrightarrow (\forall X1.\forall X2.((X1 \in k9\_xtuple\_0\ X0) \wedge (X2 \in k9\_xtuple\_0\ X0)) \Rightarrow (k1\_funct\_1\ X0\ X1 = k1\_funct\_1\ X0\ X2))) \tag{5}$$

**Theorem 1**

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1\ X2) \wedge (v1\_funct\_1\ X2)) \Rightarrow ((k9\_xtuple\_0\ X2 = k2\_zfmisc\_1\ X0\ X1) \Rightarrow ((v3\_funct\_1\ X2) \Leftrightarrow (\forall X3.\forall X4.\forall X5.\forall X6.((X3 \in X0) \wedge ((X4 \in X0) \wedge ((X5 \in X1) \wedge (X6 \in X1)))) \Rightarrow (k1\_binop\_1\ X2\ X3\ X5 = k1\_binop\_1\ X2\ X4\ X6))))$$