t13_hilbert3 (TMHMm8hpb8zk6nKUsjdqdPpN49z9XjnXZsp)

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Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(X0 \neq X2) \Rightarrow (k4\_funct\_4\ X0\ X2\ X1\ X3 = k2\_tarski\ (k4\_tarski\ X0\ X1)\ (k4\_tarski\ X2\ X3)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.\ (X0 \neq X1) \Rightarrow (k3\_relat\_1\ (k2\_tarski\ (k4\_tarski\ X2\ X0)\ (k4\_tarski\ X3\ X1))\ (k2\_tarski\ (k4\_tarski\ X0\ X4)\ (k4\_tarski\ X1\ X5)) = k2\_tarski\ (k4\_tarski\ X2\ X4)\ (k4\_tarski\ X3\ X5)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.k2\_tarski\ X0\ X1 = k2\_tarski\ X1\ X0 \tag{3}$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.\forall X3.(X0 \neq X1) \Rightarrow (k3\_relat\_1\ (k4\_funct\_4\ X0\ X1\ X1\ X0)\ (k4\_funct\_4\ X0\ X1\ X2\ X3) = k4\_funct\_4\ X0\ X1\ X3\ X2)$$