

# t11\_hilbert3 (TMVxCfAyUEyH- wwzcur85e6NM5FvXr89GFxR)

October 27, 2020

Let  $k4\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_card\_3 : \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(X0 \neq X1) \Rightarrow (k4\_card\_3 \\ & (k4\_funct\_4 X0 X1 (k1\_tarski X2) (k1\_tarski X3)) = k1\_tarski (k4\_funct\_4 \\ & X0 X1 X2 X3)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & ((r1\_tarski X0 X1) \wedge (r1\_tarski X2 X3)) \Rightarrow (r1\_tarski (k4\_card\_3 ( \\ & k4\_funct\_4 X4 X5 X0 X2)) (k4\_card\_3 (k4\_funct\_4 X4 X5 X1 X3))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski (k1\_tarski X0) X1) \Leftrightarrow (X0 \in X1) \tag{3}$$

## Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & ((X2 \in X4) \wedge (X3 \in X5)) \Rightarrow ((X0 = X1) \vee (k4\_funct\_4 X0 X1 X2 X3 \in k4\_card\_3 \\ & (k4\_funct\_4 X0 X1 X4 X5))) \end{aligned}$$