

t31\_hilbert2  
(TMJDk8uDj7iB7V1ahzQGFei9TxJPC4cNePr)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k3\_hilbert2 : \iota \Rightarrow \iota$  be given. Let  $k1\_hilbert2 : \iota \Rightarrow \iota$  be given. Let  $k2\_trees\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_hilbert1 : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k2\_hilbert2 : \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_hilbert1 : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_trees\_2 : \iota \Rightarrow o$  be given. Let  $k4\_hilbert1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_trees\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_hilbert1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & (v1\_relat\_1 \ k2\_hilbert2) \wedge ((v4\_relat\_1 \ k2\_hilbert2 \ k1\_hilbert1) \wedge \\ & ((v1\_funct\_1 \ k2\_hilbert2) \wedge (v1\_partfun1 \ k2\_hilbert2 \ k1\_hilbert1))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 \ X0 \ k5\_numbers) \Rightarrow (m1\_subset\_1 \ (k1\_hilbert2 \ X0) \ k1\_hilbert1) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 \ X0) \wedge ((v4\_relat\_1 \ X0 \ k1\_hilbert1) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_partfun1 \ X0 \ k1\_hilbert1)))) \Rightarrow ((X0 = k2\_hilbert2) \Leftrightarrow \\ & ((k1\_funct\_1 \ X0 \ k2\_hilbert1 = k2\_trees\_4 \ k1\_hilbert1 \ k2\_hilbert1) \wedge \\ & ((\forall X1.(m1\_subset\_1 \ X1 \ k5\_numbers) \Rightarrow (k1\_funct\_1 \ X0 \ (k1\_hilbert2 \ X1) = k2\_trees\_4 \ k1\_hilbert1 \ (k1\_hilbert2 \ X1)))) \wedge (\forall X1.( \\ & m1\_subset\_1 \ X1 \ k1\_hilbert1) \Rightarrow (\forall X2.(m1\_subset\_1 \ X2 \ k1\_hilbert1) \Rightarrow \\ & (\exists X3.((v1\_relat\_1 \ X3) \wedge ((v5\_relat\_1 \ X3 \ k1\_hilbert1) \wedge (v1\_funct\_1 \ X3) \wedge (v3\_trees\_2 \ X3)))) \wedge (\exists X4.((v1\_relat\_1 \\ & X4) \wedge ((v5\_relat\_1 \ X4 \ k1\_hilbert1) \wedge ((v1\_funct\_1 \ X4) \wedge (v3\_trees\_2 \ X4)))) \wedge ((X3 = k1\_funct\_1 \ X0 \ X1) \wedge ((X4 = k1\_funct\_1 \ X0 \ X2) \wedge ((k1\_funct\_1 \\ & X0 \ (k4\_hilbert1 \ X1 \ X2) = k6\_trees\_4 \ (k4\_hilbert1 \ X1 \ X2) \ X3 \ X4) \wedge (k1\_funct\_1 \\ & X0 \ (k3\_hilbert1 \ X1 \ X2) = k6\_trees\_4 \ (k3\_hilbert1 \ X1 \ X2) \ X3 \ X4)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 \ X0 \ k1\_hilbert1) \Rightarrow (k3\_hilbert2 \ X0 = k1\_funct\_1 \ k2\_hilbert2 \ X0) \quad (4)$$

**Theorem 1**

$$\forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (k3\_hilbert2 (k1\_hilbert2 X0) = k2\_trees\_4 k1\_hilbert1 (k1\_hilbert2 X0))$$