

t19\_valued\_2  
(TMQicm59M3E6f7qE2UAUTEF7DwdUE6BcsVF)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k50\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k18\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k35\_valued\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ & \quad (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 \\ & \quad X1)))) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_valued\_0 \\ & \quad X2))) \Rightarrow (k18\_valued\_1 (k18\_valued\_1 X0 X1) X2 = k18\_valued\_1 X0 ( \\ & \quad k18\_valued\_1 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 \\ & \quad X0))) \wedge ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 X1)))) \Rightarrow \\ & \quad ((v1\_relat\_1 (k18\_valued\_1 X0 X1)) \wedge ((v1\_funct\_1 (k18\_valued\_1 \\ & \quad X0 X1)) \wedge (v1\_valued\_0 (k18\_valued\_1 X0 X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ & \quad ((v1\_relat\_1 (k35\_valued\_1 X0)) \wedge ((v1\_funct\_1 (k35\_valued\_1 \\ & \quad X0)) \wedge (v1\_valued\_0 (k35\_valued\_1 X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ & \quad (\forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 \\ & \quad X1)))) \Rightarrow (k50\_valued\_1 X0 X1 = k18\_valued\_1 X0 (k35\_valued\_1 X1)) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow \\ & \quad (\forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_valued\_0 \\ & \quad X1)))) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_valued\_0 \\ & \quad X2)))) \Rightarrow (k50\_valued\_1 (k18\_valued\_1 X0 X1) X2 = k18\_valued\_1 X0 ( \\ & \quad k50\_valued\_1 X1 X2)))) \end{aligned}$$