

## t29\_circrm1

(TMaJ3BzareAeM3XzCa4QEXyugB874TuWUrc)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $r2\_circrm1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $r1\_circrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_msualg\_1 X1)) \Rightarrow (\forall X2.((\neg v2\_struct\_0 \\ & X2) \wedge (l1\_msualg\_1 X2)) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge (v1\_funct\_1 \\ & X3)) \Rightarrow (\forall X4.((v1\_relat\_1 X4) \wedge (v1\_funct\_1 X4)) \Rightarrow (\forall X5. \\ & ((v1\_relat\_1 X5) \wedge (v1\_funct\_1 X5)) \Rightarrow (\forall X6.((v1\_relat\_1 \\ & X6) \wedge (v1\_funct\_1 X6)) \Rightarrow (((r1\_circrm1 X0 X1 X3 X4) \wedge (r1\_circrm1 \\ & X1 X2 X5 X6)) \Rightarrow (r1\_circrm1 X0 X2 (k3\_relat\_1 X3 X5) (k3\_relat\_1 X4 \\ & X6)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v2\_funct\_1 \\ & X0))) \wedge ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v2\_funct\_1 X1)))) \Rightarrow \\ & ((v1\_relat\_1 (k3\_relat\_1 X0 X1)) \wedge (v2\_funct\_1 (k3\_relat\_1 X0 X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \wedge (( \\ & v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1))) \Rightarrow ((v1\_relat\_1 (k3\_relat\_1 X0 \\ & X1)) \wedge (v1\_funct\_1 (k3\_relat\_1 X0 X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. v1\_relat\_1 (k3\_relat\_1 X0 X1) \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_msualg\_1 X1)) \Rightarrow ((r2\_circrm1 X0 X1) \Leftrightarrow ( \\ & \exists X2. ((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v2\_funct\_1 X2))) \wedge \\ & (\exists X3. ((v1\_relat\_1 X3) \wedge ((v1\_funct\_1 X3) \wedge (v2\_funct\_1 X3))) \wedge \\ & (r1\_circrm1 X0 X1 X2 X3)))))) \end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_msualg\_1 X1)) \Rightarrow (\forall X2.((\neg v2\_struct\_0 \\ & X2) \wedge (l1\_msualg\_1 X2)) \Rightarrow (((r2\_circtrm1 X0 X1) \wedge (r2\_circtrm1 X1 \\ & X2)) \Rightarrow (r2\_circtrm1 X0 X2)))) \end{aligned}$$