

## t21\_circcmb3

(TMF9zUhNkCJgVnDeefjDpKEZjaGr6eRJWZo)

October 27, 2020

Let  $v4\_circcmb3 : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $v4\_msafree2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_circcmb3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_card\_3 : \iota \Rightarrow \iota$  be given. Let  $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_circcmb3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_msafree2 : \iota \Rightarrow o$  be given. Let  $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v1\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_circcomb : \iota \Rightarrow o$  be given. Let  $v8\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $v2\_circcomb : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_msafree2 \\ & \quad X0) \wedge (l1\_msualg\_1 X0)))) \Rightarrow (\forall X1.((v4\_msualg\_1 X1 X0) \wedge (( \\ & \quad v4\_msafree2 X1 X0) \wedge (l3\_msualg\_1 X1 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & \quad X2 (k4\_card\_3 (u3\_msualg\_1 X0 X1))) \Rightarrow (\forall X3.(m1\_subset\_1 \\ & \quad X3 k5\_numbers) \Rightarrow ((v1\_circuit2 (k5\_facirc\_1 X0 X1 X2 X3) X0 X1) \Rightarrow ( \\ & \quad r1\_xxreal\_0 (k2\_circcmb3 X0 X1 X2) X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v4\_circcmb3 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ & ((v4\_msafree2 X1 X0) \wedge ((v5\_circcmb3 X1 X0) \wedge (l3\_msualg\_1 X1 X0))) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 (k4\_card\_3 (u3\_msualg\_1 X0 X1))) \Rightarrow \\ & (v1\_circuit2 (k6\_circuit2 X0 X1 X2) X0 X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_msafree2 \\ X0) \wedge (l1\_msualg\_1 X0)))) \Rightarrow (\forall X1.((v4\_msualg\_1 X1 X0) \wedge (( \\ v4\_msafree2 X1 X0) \wedge (l3\_msualg\_1 X1 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 \\ X2 (k4\_card\_3 (u3\_msualg\_1 X0 X1))) \Rightarrow (k5\_facirc\_1 X0 X1 X2 np\_1 = \\ k6\_circuit2 X0 X1 X2))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\ ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((v4\_circcmb3 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ (l3\_msualg\_1 X1 X0) \Rightarrow (((v4\_msafree2 X1 X0) \wedge (v5\_circcmb3 X1 X0)) \Rightarrow \\ ((v3\_msualg\_1 X1 X0) \wedge ((v4\_msualg\_1 X1 X0) \wedge (v4\_msafree2 X1 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_msualg\_1 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v1\_circcomb \\ X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v2\_msafree2 X0))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_msualg\_1 X0) \Rightarrow ((v4\_circcmb3 X0) \Rightarrow ((\neg v2\_struct\_0 \\ X0) \wedge ((v8\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v1\_msualg\_1 X0) \wedge \\ ((v1\_circcomb X0) \wedge (v2\_circcomb X0))))))) \end{aligned} \quad (7)$$

### Theorem 1

$$\begin{aligned} \forall X0.((v4\_circcmb3 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ ((v4\_msafree2 X1 X0) \wedge ((v5\_circcmb3 X1 X0) \wedge (l3\_msualg\_1 X1 X0))) \Rightarrow \\ (\forall X2.(m1\_subset\_1 X2 (k4\_card\_3 (u3\_msualg\_1 X0 X1))) \Rightarrow \\ (r1\_xxreal\_0 (k2\_circcmb3 X0 X1 X2) np\_1))) \end{aligned}$$