

l66\_quaterni (TMSLRx-  
CogxVzCPtBMWCvG41HTHJvMpzAvhJ)

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Let  $v1\_quaterni : \iota \Rightarrow o$  be given. Let  $k10\_quaterni : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_quaterni : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k17\_quaterni : \iota \Rightarrow \iota$  be given. Let  $k18\_quaterni : \iota \Rightarrow \iota$  be given. Let  $k19\_quaterni : \iota \Rightarrow \iota$  be given. Let  $k20\_quaterni : \iota \Rightarrow \iota$  be given. Let  $k7\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_quaterni X0) \Rightarrow (X0 = k6\_quaterni (k17\_quaterni X0) (k18\_quaterni X0) (k19\_quaterni X0) (k20\_quaterni X0)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_quaterni X0) \Rightarrow (\forall X1.(v1\_quaterni X1) \Rightarrow (\forall X2. \\ & (v1\_quaterni X2) \Rightarrow ((X2 = k10\_quaterni X0 X1) \Rightarrow ((k17\_quaterni X2 = \\ & k9\_real\_1 (k9\_real\_1 (k9\_real\_1 (k8\_real\_1 (k17\_quaterni X0) \\ & (k17\_quaterni X1)) (k8\_real\_1 (k18\_quaterni X0) (k18\_quaterni \\ & X1))) (k8\_real\_1 (k19\_quaterni X0) (k19\_quaterni X1))) (k8\_real\_1 \\ & (k20\_quaterni X0) (k20\_quaterni X1)))) \wedge ((k18\_quaterni X2 = k9\_real\_1 \\ & (k7\_real\_1 (k7\_real\_1 (k8\_real\_1 (k17\_quaterni X0) (k18\_quaterni \\ & X1)) (k8\_real\_1 (k18\_quaterni X0) (k17\_quaterni X1))) (k8\_real\_1 \\ & (k19\_quaterni X0) (k20\_quaterni X1))) (k8\_real\_1 (k20\_quaterni \\ & X0) (k19\_quaterni X1))) \wedge ((k19\_quaterni X2 = k9\_real\_1 (k7\_real\_1 \\ & (k7\_real\_1 (k8\_real\_1 (k17\_quaterni X0) (k19\_quaterni X1)) (k8\_real\_1 \\ & (k19\_quaterni X0) (k17\_quaterni X1))) (k8\_real\_1 (k20\_quaterni \\ & X0) (k18\_quaterni X1))) (k8\_real\_1 (k18\_quaterni X0) (k20\_quaterni \\ & X1))) \wedge (k20\_quaterni X2 = k9\_real\_1 (k7\_real\_1 (k7\_real\_1 (k8\_real\_1 \\ & (k17\_quaterni X0) (k20\_quaterni X1)) (k8\_real\_1 (k20\_quaterni \\ & X0) (k17\_quaterni X1))) (k8\_real\_1 (k18\_quaterni X0) (k19\_quaterni \\ & X1))) (k8\_real\_1 (k19\_quaterni X0) (k18\_quaterni X1))))))))) \quad (2) \end{aligned}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_quaterni X0) \wedge (v1\_quaterni X1)) \Rightarrow (v1\_quaterni (k10\_quaterni X0 X1)) \quad (3)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(v1\_quaterni\ X0) \Rightarrow (\forall X1.(v1\_quaterni\ X1) \Rightarrow (k10\_quaterni \\ X0\ X1 = k6\_quaterni\ (k9\_real\_1\ (k9\_real\_1\ (k9\_real\_1\ (k8\_real\_1 \\ (k17\_quaterni\ X0)\ (k17\_quaterni\ X1))\ (k8\_real\_1\ (k18\_quaterni \\ X0)\ (k18\_quaterni\ X1)))\ (k8\_real\_1\ (k19\_quaterni\ X0)\ (k19\_quaterni \\ X1)))\ (k8\_real\_1\ (k20\_quaterni\ X0)\ (k20\_quaterni\ X1)))\ (k9\_real\_1 \\ (k7\_real\_1\ (k7\_real\_1\ (k8\_real\_1\ (k17\_quaterni\ X0)\ (k18\_quaterni \\ X1))\ (k8\_real\_1\ (k18\_quaterni\ X0)\ (k17\_quaterni\ X1)))\ (k8\_real\_1 \\ (k19\_quaterni\ X0)\ (k20\_quaterni\ X1)))\ (k8\_real\_1\ (k20\_quaterni \\ X0)\ (k19\_quaterni\ X1)))\ (k9\_real\_1\ (k7\_real\_1\ (k7\_real\_1\ (k8\_real\_1 \\ (k17\_quaterni\ X0)\ (k19\_quaterni\ X1))\ (k8\_real\_1\ (k19\_quaterni \\ X0)\ (k17\_quaterni\ X1)))\ (k8\_real\_1\ (k20\_quaterni\ X0)\ (k18\_quaterni \\ X1)))\ (k8\_real\_1\ (k18\_quaterni\ X0)\ (k20\_quaterni\ X1)))\ (k9\_real\_1 \\ (k7\_real\_1\ (k7\_real\_1\ (k8\_real\_1\ (k17\_quaterni\ X0)\ (k20\_quaterni \\ X1))\ (k8\_real\_1\ (k20\_quaterni\ X0)\ (k17\_quaterni\ X1)))\ (k8\_real\_1 \\ (k18\_quaterni\ X0)\ (k19\_quaterni\ X1)))\ (k8\_real\_1\ (k19\_quaterni \\ X0)\ (k18\_quaterni\ X1)))))) \end{aligned}$$