## t163_member_1 <br> (TMZ1UYDfag5n9rVi46GXvYvCF3BS8DxgvCz)

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Let $v 1 \_$membered : $\iota \Rightarrow 0$ be given. Let $v 1 \_x c m p l x \_0: ~ \iota \Rightarrow 0$ be given. Let r1_tarski : $\iota \Rightarrow \iota \Rightarrow 0$ be given. Let k19_member_1 : $\iota \Rightarrow \iota \Rightarrow \iota$ be given. Let k17_member_1 : $\iota \Rightarrow \iota \Rightarrow \iota$ be given. Let k5_member_1 : $\iota \Rightarrow \iota$ be given. Let $k 1 \_$tarski $: \iota \Rightarrow \iota$ be given. Let $k 11 \_$member_1 : $\iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k 9 \_m e m b e r \_1$ : $\iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$
\left.\begin{array}{rl}
\forall X 0 . \forall X 1 .\left(v 1 \_m e m b e r e d ~\right. & X 1) \Rightarrow  \tag{1}\\
\underset{X 0)}{( }) & \left(r 1 \_t a r s k i\right.
\end{array} X_{0} X 1\right) \Rightarrow\left(v 1 \_m e m b e r e d ~ 子\right.
$$

Assume the following.

$$
\begin{gathered}
\forall X 0 .\left(v 1 \_m e m b e r e d ~ X 0\right) \Rightarrow\left(\forall X 1 .\left(v 1 \_m e m b e r e d X 1\right) \Rightarrow(\forall X 2 .\right. \\
\left(v 1 \_x c m p l x \_0 X 2\right) \Rightarrow\left(\left(r 1 \_ \text { tarski X0 X1) } \Leftrightarrow \left(r 1 \_ \text { tarski } \left(k 17 \_m e m b e r \_1\right.\right.\right.\right. \\
\left.\left.\left.\left.X 0 X 2)\left(k 17 \_m e m b e r \_1 X 1 X 2\right)\right)\right)\right)\right)
\end{gathered}
$$

Assume the following.

$$
\begin{gather*}
\forall X 0 .\left(v 1 \_m e m b e r e d ~ X 0\right) \Rightarrow\left(\forall X 1 .\left(v 1 \_m e m b e r e d ~ X 1\right) \Rightarrow(( \right. \\
\left.\left.\left.r 1 \_t a r s k i \quad X 0 X 1\right) \Leftrightarrow\left(r 1 \_t a r s k i\left(k 5 \_m e m b e r \_1 X 0\right)\left(k 5 \_m e m b e r \_1 X 1\right)\right)\right)\right) \tag{3}
\end{gather*}
$$

Assume the following.

$$
\begin{gather*}
\forall X 0 .\left(v 1 \_m e m b e r e d ~ X 0\right) \Rightarrow\left(\forall X 1 .\left(v 1 \_m e m b e r e d ~ X 1\right) \Rightarrow(( \right. \\
\left.\left.\left.r 1 \_t a r s k i X 0 X 1\right) \Rightarrow\left(r 1 \_t a r s k i\left(k 5 \_m e m b e r \_1 X 0\right)\left(k 5 \_m e m b e r \_1 X 1\right)\right)\right)\right) \tag{4}
\end{gather*}
$$

Assume the following.

$$
\begin{equation*}
\forall X 0 .\left(v 1 \_x c m p l x \_0 X 0\right) \Rightarrow\left(v 1 \_m e m b e r e d\left(k 1 \_t a r s k i X 0\right)\right) \tag{5}
\end{equation*}
$$

Assume the following.

$$
\begin{equation*}
\forall X 0 .\left(v 1 \_m e m b e r e d \quad X 0\right) \Rightarrow\left(v 1 \_m e m b e r e d\left(k 5 \_m e m b e r \_1 X 0\right)\right) \tag{6}
\end{equation*}
$$

Assume the following.

$$
\begin{gather*}
\forall X 0 .\left(v 1 \_m e m b e r e d ~ X 0\right) \Rightarrow\left(\forall X 1 .\left(v 1 \_ \text {membered } X 1\right) \Rightarrow\left(k 11 \_m e m b e r \_1\right.\right. \\
\left.\left.X 0 X 1=k 9 \_m e m b e r \_1 X 0\left(k 5 \_m e m b e r \_1 X 1\right)\right)\right) \tag{7}
\end{gather*}
$$

Assume the following.

$$
\begin{gather*}
\forall X 0 . \forall X 1 .\left(X 1=k 1 \_ \text {tarski } X 0\right) \Leftrightarrow(\forall X 2 .(X 2 \in X 1) \Leftrightarrow  \tag{8}\\
(X 2=X 0))
\end{gather*}
$$

Assume the following.

$$
\begin{equation*}
\forall X 0 .\left(v 1 \_ \text {membered } X 0\right) \Leftrightarrow\left(\forall X 1 .(X 1 \in X 0) \Rightarrow\left(v 1 \_x c m p l x \_0 X 1\right)\right) \tag{9}
\end{equation*}
$$

Assume the following.

$$
\begin{gather*}
\forall X 0 .\left(v 1 \_m e m b e r e d ~ X 0\right) \Rightarrow\left(\forall X 1 .\left(v 1 \_x c m p l x \_0 X 1\right) \Rightarrow\left(k 19 \_m e m b e r \_1\right.\right. \\
\left.\left.X 0 X 1=k 11 \_m e m b e r \_1\left(k 1 \_t a r s k i X 1\right) X 0\right)\right) \tag{10}
\end{gather*}
$$

Assume the following.

$$
\begin{gather*}
\forall X 0 .\left(v 1 \_m e m b e r e d ~ X 0\right) \Rightarrow\left(\forall X 1 .\left(v 1 \_x c m p l x \_0 X 1\right) \Rightarrow\left(k 17 \_m e m b e r \_1\right.\right. \\
\left.\left.X 0 X 1=k 9 \_m e m b e r \_1\left(k 1 \_t a r s k i X 1\right) X 0\right)\right) \tag{11}
\end{gather*}
$$

## Theorem 1

$\forall X 0 .\left(v 1 \_m e m b e r e d \quad X 0\right) \Rightarrow\left(\forall X 1 .\left(v 1 \_m e m b e r e d ~ X 1\right) \Rightarrow(\forall X 2\right.$.
$\left(v 1 \_x c m p l x \_0 \quad X 2\right) \Rightarrow\left(\left(r 1 \_t a r s k i X 0 X 1\right) \Leftrightarrow\left(r 1 \_t a r s k i \quad\left(k 19 \_m e m b e r \_1\right.\right.\right.$ X0 X2) (k19_member_1 X1 X2)))))

