

## t19\_nfcont\_3

(TMJJS2uupR1aYVwc5JhAbRYSTtzNR9z6P5v)

October 27, 2020

Let  $v2\_struct.0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr.0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $v3\_normsp.0 : \iota \Rightarrow o$  be given. Let  $v4\_normsp.0 : \iota \Rightarrow o$  be given. Let  $v2\_normsp.1 : \iota \Rightarrow o$  be given. Let  $l1\_normsp.1 : \iota \Rightarrow o$  be given. Let  $v1\_funct.1 : \iota \Rightarrow o$  be given. Let  $m1\_subset.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc.1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_subset.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_nfcont.3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_vfunct.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_vfunct.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  be given. Let  $v1\_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k2\_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_normsp.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_normsp.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_normsp.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_normsp.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_algstr.0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_rlvect.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole.0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_comseq.2 : \iota \Rightarrow o$  be given. Let  $k2\_seq.2 : \iota \Rightarrow \iota$  be given. Let  $k7\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_subset.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_vfunct.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $l1\_algstr.0 : \iota \Rightarrow o$  be given. Let  $k1\_algstr.0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_seq.2 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat.1 : \iota \Rightarrow o$  be given. Let  $v4\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple.0 : \iota \Rightarrow \iota$  be given. Let  $l2\_algstr.0 : \iota \Rightarrow o$  be given. Let  $l2\_struct.0 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect.1 : \iota \Rightarrow o$  be given. Let  $l2\_normsp.0 : \iota \Rightarrow o$  be given. Let  $v5\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset.1 X0 (k1\_zfmisc.1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset.1 X0 X1) \Rightarrow ((v1\_xboole.0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 \\
& X0) \wedge ((v4\_normsp\_0 X0) \wedge ((v2\_normsp\_1 X0) \wedge (l1\_normsp\_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& k1\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers (u1\_struct\_0 \\
& X0)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 k5\_numbers \\
& k1\_numbers) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\
& k1\_numbers)))))) \Rightarrow ((r1\_tarski (k2\_relset\_1 k1\_numbers X3) (k9\_subset\_1 \\
& k1\_numbers (k1\_relset\_1 k1\_numbers X1) (k1\_relset\_1 k1\_numbers \\
& X2))) \Rightarrow ((r2\_funct\_2 k5\_numbers (u1\_struct\_0 X0) (k8\_funct\_2 k5\_numbers \\
& (u1\_struct\_0 X0) k1\_numbers X3 (k6\_vfunct\_1 k1\_numbers X0 X1 X2)) \\
& (k2\_normsp\_1 X0 (k8\_funct\_2 k5\_numbers (u1\_struct\_0 X0) k1\_numbers \\
& X3 X1) (k8\_funct\_2 k5\_numbers (u1\_struct\_0 X0) k1\_numbers X3 X2))) \wedge \\
& (r2\_funct\_2 k5\_numbers (u1\_struct\_0 X0) (k8\_funct\_2 k5\_numbers \\
& (u1\_struct\_0 X0) k1\_numbers X3 (k2\_vfunct\_1 k1\_numbers X0 X1 X2)) \\
& (k3\_normsp\_1 X0 (k8\_funct\_2 k5\_numbers (u1\_struct\_0 X0) k1\_numbers \\
& X3 X1) (k8\_funct\_2 k5\_numbers (u1\_struct\_0 X0) k1\_numbers X3 X2))))))))) \\
& \tag{3}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 \\
& X0) \wedge ((v4\_normsp\_0 X0) \wedge ((v2\_normsp\_1 X0) \wedge (l1\_normsp\_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\
& X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers \\
& (u1\_struct\_0 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (((v3\_normsp\_1 X1 X0) \wedge (v3\_normsp\_1 \\
& X2 X0)) \Rightarrow (k6\_normsp\_1 X0 (k3\_normsp\_1 X0 X1 X2) = k5\_algstr\_0 X0 ( \\
& k6\_normsp\_1 X0 X1) (k6\_normsp\_1 X0 X2)))))) \\
& \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 \\
& X0) \wedge ((v4\_normsp\_0 X0) \wedge ((v2\_normsp\_1 X0) \wedge (l1\_normsp\_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\
& X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers \\
& (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (((v3\_normsp\_1 X1 X0) \wedge (v3\_normsp\_1 \\
& X2 X0)) \Rightarrow (k6\_normsp\_1 X0 (k2\_normsp\_1 X0 X1 X2) = k3\_rlvect\_1 X0 ( \\
& k6\_normsp\_1 X0 X1) (k6\_normsp\_1 X0 X2))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 \\
& X0) \wedge ((v4\_normsp\_0 X0) \wedge ((v2\_normsp\_1 X0) \wedge (l1\_normsp\_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\
& X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers \\
& (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (((v3\_normsp\_1 X1 X0) \wedge (v3\_normsp\_1 \\
& X2 X0)) \Rightarrow (v3\_normsp\_1 (k3\_normsp\_1 X0 X1 X2) X0))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X2)) \Rightarrow (r1\_tarski X0 X2) \tag{7}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 \\
& X0) \wedge ((v4\_normsp\_0 X0) \wedge ((v2\_normsp\_1 X0) \wedge (l1\_normsp\_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\
& X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers \\
& (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (((v3\_normsp\_1 X1 X0) \wedge (v3\_normsp\_1 \\
& X2 X0)) \Rightarrow (v3\_normsp\_1 (k2\_normsp\_1 X0 X1 X2) X0))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(r1\_tarski\ X0\ (k3\_xboole\_0\ X1\ X2))\Rightarrow(r1\_tarski\ X0\ X1) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v5\_rlvect\_1\ X0)\wedge \\ & ((v6\_rlvect\_1\ X0)\wedge((v7\_rlvect\_1\ X0)\wedge((v8\_rlvect\_1\ X0)\wedge((v3\_normsp\_0\ X0)\wedge((v4\_normsp\_0\ X0)\wedge((v2\_normsp\_1\ X0)\wedge(l1\_normsp\_1\ X0))))))))))\Rightarrow \\ & (\forall X1.\forall X2.((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ (u1\_struct\_0\ X0))))))\Rightarrow((r1\_tarski\ X1\ (k1\_relset\_1\ k1\_numbers\ X2))\Rightarrow((v1\_nfcont\_3\ (k2\_partfun1\ k1\_numbers\ (u1\_struct\_0\ X0)\ X2\ X1)\ X0)\Leftrightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ k5\_numbers\ k1\_numbers)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))))\Rightarrow(((r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ X3)\ X1)\wedge((v2\_comseq\_2\ X3)\wedge(k2\_seq\_2\ X3\ \in\ X1)))\Rightarrow((v3\_normsp\_1\ (k8\_funct\_2\ k5\_numbers\ (u1\_struct\_0\ X0)\ k1\_numbers\ X3\ X2)\ X0)\wedge(k7\_partfun1\ (u1\_struct\_0\ X0)\ X2\ (k2\_seq\_2\ X3)\ =\ k6\_normsp\_1\ X0\ (k8\_funct\_2\ k5\_numbers\ (u1\_struct\_0\ X0)\ k1\_numbers\ X3\ X2))))))))) \quad (11) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1\ X2)\wedge \\ & ((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\wedge((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ X1)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow((r2\_funct\_2\ X0\ X1\ X2\ X3)\Leftrightarrow(X2 = X3)) \quad (12) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge \\ & (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ X0\ X1)\Leftrightarrow(m1\_subset\_1\ X2\ X1)) \quad (13) \end{aligned}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X0))\Rightarrow(k9\_subset\_1\ X0\ X1\ X2 = k3\_xboole\_0\ X1\ X2) \quad (14)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 X0) \wedge \\
& \quad (((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge \\
& \quad (v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v5\_rlvect\_1 X1) \wedge ((v6\_rlvect\_1 \\
& \quad X1) \wedge ((v7\_rlvect\_1 X1) \wedge ((v8\_rlvect\_1 X1) \wedge ((v3\_normsp\_0 X1) \wedge \\
& \quad (v4\_normsp\_0 X1) \wedge ((v2\_normsp\_1 X1) \wedge (l1\_normsp\_1 X1)))))))))) \wedge \\
& \quad (((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& \quad X0 (u1\_struct\_0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1)))))) \Rightarrow (k6\_vfunct\_1 X0 X1 X2 \\
& \quad X3 = k1\_vfunct\_1 X0 X1 X2 X3)
\end{aligned} \tag{15}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((v2\_rlvect\_1 X0) \wedge (l1\_algstr\_0 \\
& \quad X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\
& \quad X0)))) \Rightarrow (k3\_rlvect\_1 X0 X1 X2 = k1\_algstr\_0 X0 X1 X2)
\end{aligned} \tag{17}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\
& \quad (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))) \Rightarrow \\
& \quad (k2\_seq\_2 X0 = k1\_seq\_2 X0)
\end{aligned} \tag{18}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((v1\_funct\_1 X2) \wedge \\
& \quad (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (k2\_partfun1 \\
& \quad X0 X1 X2 X3 = k5\_relat\_1 X2 X3)
\end{aligned} \tag{19}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow ( \\
& \quad k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1)
\end{aligned} \tag{20}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_relat\_1 X0)) \Rightarrow (\neg v1\_xboole\_0 \\
& \quad (k9\_xtuple\_0 X0))
\end{aligned} \tag{21}$$

Assume the following.

$$\forall X0. \forall X1. v1\_relat\_1 (k2\_zfmisc\_1 X0 X1) \tag{22}$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \tag{23}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboole\_0 X0)\wedge(v1\_relat\_1 X0))\Rightarrow((v1\_xboole\_0 (k5\_relat\_1 X0 X1))\wedge(v1\_relat\_1 (k5\_relat\_1 X0 X1))) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0)\wedge(v1\_xboole\_0 X1))\Rightarrow((v1\_xboole\_0 (k5\_relat\_1 X0 X1))\wedge(v1\_relat\_1 (k5\_relat\_1 X0 X1))) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 X2 X0 X1)\Rightarrow(m1\_subset\_1 X2 X0)) \quad (26)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0)\Rightarrow((l2\_struct\_0 X0)\wedge(l1\_algstr\_0 X0)) \quad (27)$$

Assume the following.

$$\forall X0.(l1\_rlvect\_1 X0)\Rightarrow(l2\_algstr\_0 X0) \quad (28)$$

Assume the following.

$$\forall X0.(l1\_normsp\_1 X0)\Rightarrow((l1\_rlvect\_1 X0)\wedge(l2\_normsp\_0 X0)) \quad (29)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0 X2)\wedge(((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 X2)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X2))))))\wedge((v1\_relat\_1 X4)\wedge((v5\_relat\_1 X4 X1)\wedge(v1\_funct\_1 X4))))\Rightarrow(((v1\_funct\_1 (k8\_funct\_2 X0 X1 X2 X3 X4))\wedge((v1\_funct\_2 (k8\_funct\_2 X0 X1 X2 X3 X4) X0 X1)\wedge(m1\_subset\_1 (k8\_funct\_2 X0 X1 X2 X3 X4) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1 X1)\wedge((v5\_relat\_1 X1 X0)\wedge(v1\_funct\_1 X1)))\Rightarrow(m1\_subset\_1 (k7\_partfun1 X0 X1 X2) X0) \quad (31)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge(((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge((v5\_rlvect\_1 X1)\wedge((v6\_rlvect\_1 X1)\wedge((v7\_rlvect\_1 X1)\wedge((v8\_rlvect\_1 X1)\wedge((v3\_normsp\_0 X1)\wedge((v4\_normsp\_0 X1)\wedge((v2\_normsp\_1 X1)\wedge(l1\_normsp\_1 X1))))))))))))))\wedge(((v1\_funct\_1 X2)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))\wedge((v1\_funct\_1 X3)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))\Rightarrow((v1\_funct\_1 (k6\_vfunct\_1 X0 X1 X2 X3))\wedge(m1\_subset\_1 (k6\_vfunct\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1)))))) \quad (32)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l2\_algstr\_0 \\
& X0))\wedge(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\
& X0))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0))))))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 \\
& X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0)))))))\Rightarrow((v1\_funct\_1 (k3\_normsp\_1 X0 X1 X2))\wedge((v1\_funct\_2 \\
& (k3\_normsp\_1 X0 X1 X2) k5\_numbers (u1\_struct\_0 X0))\wedge(m1\_subset\_1 \\
& (k3\_normsp\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0))))))
\end{aligned} \tag{33}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\
& (((\neg v2\_struct\_0 X1)\wedge(l2\_algstr\_0 X1))\wedge(((v1\_funct\_1 X2)\wedge(m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))\wedge((v1\_funct\_1 \\
& X3)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 \\
& X1)))))))\Rightarrow((v1\_funct\_1 (k2\_vfunct\_1 X0 X1 X2 X3))\wedge(m1\_subset\_1 \\
& (k2\_vfunct\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 \\
& X1))))))
\end{aligned} \tag{34}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0)\wedge((v1\_funct\_2 X0 k5\_numbers k1\_numbers)\wedge \\
& (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers))))\Rightarrow \\
& (m1\_subset\_1 (k2\_seq\_2 X0) k1\_numbers)
\end{aligned} \tag{35}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1 X2)\wedge \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))\Rightarrow((v1\_funct\_1 \\
& (k2\_partfun1 X0 X1 X2 X3))\wedge(m1\_subset\_1 (k2\_partfun1 X0 X1 X2 X3) \\
& (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))
\end{aligned} \tag{36}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l2\_algstr\_0 \\
& X0))\wedge(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 \\
& X0))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0))))))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 \\
& X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0)))))))\Rightarrow((v1\_funct\_1 (k2\_normsp\_1 X0 X1 X2))\wedge((v1\_funct\_2 \\
& (k2\_normsp\_1 X0 X1 X2) k5\_numbers (u1\_struct\_0 X0))\wedge(m1\_subset\_1 \\
& (k2\_normsp\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\
& X0))))))
\end{aligned} \tag{37}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow(m1\_subset\_1 (k1\_relset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \quad (38)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge \\ (l2\_algstr\_0 X1))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge(m1\_subset\_1 \\ X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))\Rightarrow(\forall X3. \\ ((v1\_funct\_1 X3)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\ (u1\_struct\_0 X1))))))\Rightarrow(\forall X4.((v1\_funct\_1 X4)\wedge(m1\_subset\_1 \\ X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))\Rightarrow((X4 = k2\_vfunct\_1 \\ X0 X1 X2 X3)\Leftrightarrow((k1\_relset\_1 X0 X4 = k9\_subset\_1 X0 (k1\_relset\_1 X0 \\ X2) (k1\_relset\_1 X0 X3))\wedge(\forall X5.(m1\_subset\_1 X5 X0)\Rightarrow((X5 \in \\ k1\_relset\_1 X0 X4)\Rightarrow(k7\_partfun1 (u1\_struct\_0 X1) X4 X5 = k5\_algstr\_0 \\ X1 (k7\_partfun1 (u1\_struct\_0 X1) X2 X5) (k7\_partfun1 (u1\_struct\_0 \\ X1) X3 X5)))))))))) \end{aligned} \quad (39)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge \\ (l2\_algstr\_0 X1))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge(m1\_subset\_1 \\ X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))\Rightarrow(\forall X3. \\ ((v1\_funct\_1 X3)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 \\ (u1\_struct\_0 X1))))))\Rightarrow(\forall X4.((v1\_funct\_1 X4)\wedge(m1\_subset\_1 \\ X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (u1\_struct\_0 X1))))))\Rightarrow((X4 = k1\_vfunct\_1 \\ X0 X1 X2 X3)\Leftrightarrow((k1\_relset\_1 X0 X4 = k9\_subset\_1 X0 (k1\_relset\_1 X0 \\ X2) (k1\_relset\_1 X0 X3))\wedge(\forall X5.(m1\_subset\_1 X5 X0)\Rightarrow((X5 \in \\ k1\_relset\_1 X0 X4)\Rightarrow(k7\_partfun1 (u1\_struct\_0 X1) X4 X5 = k1\_algstr\_0 \\ X1 (k7\_partfun1 (u1\_struct\_0 X1) X2 X5) (k7\_partfun1 (u1\_struct\_0 \\ X1) X3 X5)))))))))) \end{aligned} \quad (40)$$

Assume the following.

$$\forall X0.\forall X1.k3\_xboole\_0 X0 X1 = k3\_xboole\_0 X1 X0 \quad (41)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)) \quad (42)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(v1\_relat\_1 X1)) \quad (43)$$



Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 \\
& X0) \wedge ((v4\_normsp\_0 X0) \wedge ((v2\_normsp\_1 X0) \wedge (l1\_normsp\_1 X0)))))))))) \Rightarrow \\
& (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers \\
& (u1\_struct\_0 X0)))) \Rightarrow (((v1\_xboole\_0 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (( \\
& v1\_funct\_1 X1) \wedge (v1\_nfcont\_3 X1 X0))))
\end{aligned} \tag{44}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2)
\end{aligned} \tag{45}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 \\
& X0) \wedge ((v4\_normsp\_0 X0) \wedge ((v2\_normsp\_1 X0) \wedge (l1\_normsp\_1 X0)))))))))) \Rightarrow \\
& (\forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 k1\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (\forall X3. (( \\
& v1\_funct\_1 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers \\
& (u1\_struct\_0 X0)))))) \Rightarrow (((r1\_tarski X1 (k9\_subset\_1 k1\_numbers \\
& (k1\_relset\_1 k1\_numbers X2) (k1\_relset\_1 k1\_numbers X3))) \wedge (( \\
& v1\_nfcont\_3 (k2\_partfun1 k1\_numbers (u1\_struct\_0 X0) X2 X1) X0) \wedge \\
& (v1\_nfcont\_3 (k2\_partfun1 k1\_numbers (u1\_struct\_0 X0) X3 X1) X0)) \Rightarrow \\
& ((v1\_nfcont\_3 (k2\_partfun1 k1\_numbers (u1\_struct\_0 X0) (k6\_vfunct\_1 \\
& k1\_numbers X0 X2 X3) X1) X0) \wedge (v1\_nfcont\_3 (k2\_partfun1 k1\_numbers \\
& (u1\_struct\_0 X0) (k2\_vfunct\_1 k1\_numbers X0 X2 X3) X1) X0))))))
\end{aligned}$$