

## t20\_scmfsa\_2

(TMYYqKDM4DSwTFfFsPYnXoGZcrHkawhLfeZ)

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Let  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmfsa\_2 : \iota$  be given. Let  $k2\_compos\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $k8\_scmfsa\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_compos\_0 : \iota \Rightarrow o$  be given. Let  $k4\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_compos\_0 : \iota \Rightarrow o$  be given. Let  $v3\_compos\_0 : \iota \Rightarrow o$  be given. Let  $v5\_compos\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_card\_3 : \iota \Rightarrow \iota$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_scm\_inst : \iota$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_ami\_2 : \iota$  be given. Let  $k3\_ami\_2 : \iota$  be given. Let  $k4\_ami\_2 : \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $k1\_ami\_2 : \iota$  be given. Let  $k2\_ami\_2 : \iota$  be given. Let  $v1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_7 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_ami\_3 : \iota$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k4\_ami\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xtuple\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $u2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v1\_xboole\_0 X0) \wedge (v1\_compos\_0 X0)) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow (k2\_compos\_0 X0 X1 = k4\_xtuple\_0 X1) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. k1\_xtuple\_0 (k4\_tarski X0 X1) = X0 \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& \forall X6.((m1\_subset\_1 X2 X1)\wedge(((v1\_compos\_0 X3)\wedge((v2\_compos\_0 \\
& X3)\wedge((v3\_compos\_0 X3)\wedge(v5\_compos\_0 X3))))\wedge(((v1\_funct\_1 X4)\wedge \\
& ((v1\_funct\_2 X4 X1 X0)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X1 X0))))\wedge(((v1\_relat\_1 X5)\wedge((v4\_relat\_1 X5 X0)\wedge((v1\_funct\_1 \\
& X5)\wedge(v1\_partfun1 X5 X0))))\wedge((v1\_funct\_1 X6)\wedge((v1\_funct\_2 X6 \\
& X3 (k1\_funct\_2 (k4\_card\_3 (k3\_relat\_1 X4 X5)) (k4\_card\_3 (k3\_relat\_1 \\
& X4 X5))))\wedge(m1\_subset\_1 X6 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X3 (k1\_funct\_2 \\
& (k4\_card\_3 (k3\_relat\_1 X4 X5)) (k4\_card\_3 (k3\_relat\_1 X4 X5))))))))))\Rightarrow \\
& (\forall X7.\forall X8.\forall X9.\forall X10.\forall X11.\forall X12. \\
& \forall X13.(g1\_extpro\_1 X0 X1 X2 X3 X4 X5 X6 = g1\_extpro\_1 X7 X8 X9 \\
& X10 X11 X12 X13)\Rightarrow((X0 = X7)\wedge((X1 = X8)\wedge((X2 = X9)\wedge((X3 = X10)\wedge((X4 = \\
& X11)\wedge((X5 = X12)\wedge(X6 = X13))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$(\neg v1\_xboole\_0 k3\_scm\_inst)\wedge(v5\_compos\_0 k3\_scm\_inst) \tag{5}$$

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$$(\neg v1\_xboole\_0 k3\_scm\_inst)\wedge(v3\_compos\_0 k3\_scm\_inst) \tag{6}$$

Assume the following.

$$(\neg v1\_xboole\_0 k3\_scm\_inst)\wedge(v2\_compos\_0 k3\_scm\_inst) \tag{7}$$

Assume the following.

$$(\neg v1\_xboole\_0 k3\_scm\_inst)\wedge(v1\_compos\_0 k3\_scm\_inst) \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_compos\_1 X0)\Rightarrow((v1\_compos\_0 (u1\_compos\_1 X0))\wedge \\
& ((v2\_compos\_0 (u1\_compos\_1 X0))\wedge((v3\_compos\_0 (u1\_compos\_1 \\
& X0))\wedge(v5\_compos\_0 (u1\_compos\_1 X0))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.(l1\_extpro\_1 X1 X0)\Rightarrow((l1\_memstr\_0 X1 X0)\wedge \\
(l1\_compos\_1 X1)) \tag{10}$$

Assume the following.

$$\begin{aligned}
& (v1\_funct\_1 k9\_ami\_2)\wedge((v1\_funct\_2 k9\_ami\_2 k3\_scm\_inst (k1\_funct\_2 \\
& (k4\_card\_3 (k3\_relat\_1 k3\_ami\_2 k4\_ami\_2)) (k4\_card\_3 (k3\_relat\_1 \\
& k3\_ami\_2 k4\_ami\_2))))\wedge(m1\_subset\_1 k9\_ami\_2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& k3\_scm\_inst (k1\_funct\_2 (k4\_card\_3 (k3\_relat\_1 k3\_ami\_2 k4\_ami\_2)) \\
& (k4\_card\_3 (k3\_relat\_1 k3\_ami\_2 k4\_ami\_2))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_ami\_2 X0)\wedge(m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)))\wedge((v1\_ami\_2 X1)\wedge(m1\_subset\_1 X1 (u1\_struct\_0 k1\_scmfsa\_2))))\Rightarrow(m1\_subset\_1 (k8\_scmfsa\_2 X0 X1) (u1\_compos\_1 k1\_scmfsa\_2)) \quad (12)$$

Assume the following.

$$(v1\_relat\_1 k4\_ami\_2)\wedge((v4\_relat\_1 k4\_ami\_2 np\_2)\wedge((v1\_funct\_1 k4\_ami\_2)\wedge(v1\_partfun1 k4\_ami\_2 np\_2))) \quad (13)$$

Assume the following.

$$(v1\_funct\_1 k3\_ami\_2)\wedge((v1\_funct\_2 k3\_ami\_2 k1\_ami\_2 np\_2)\wedge(m1\_subset\_1 k3\_ami\_2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_ami\_2 np\_2)))) \quad (14)$$

Assume the following.

$$m1\_subset\_1 k2\_ami\_2 (k1\_zfmisc\_1 k1\_ami\_2) \quad (15)$$

Assume the following.

$$(v1\_extpro\_1 k1\_scmfsa\_2 np\_3)\wedge(l1\_extpro\_1 k1\_scmfsa\_2 np\_3) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.m1\_subset\_1 (k1\_funct\_7 X0 X1) X1 \quad (17)$$

Assume the following.

$$(v1\_extpro\_1 k1\_ami\_3 np\_2)\wedge(l1\_extpro\_1 k1\_ami\_3 np\_2) \quad (18)$$

Assume the following.

$$\forall X0.k4\_xtuple\_0 X0 = k1\_xtuple\_0 (k1\_xtuple\_0 X0) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski X0 X1 = k2\_tarski (k2\_tarski X0 X1) (k1\_tarski X0) \quad (20)$$

Assume the following.

$$\begin{aligned} &\forall X0.((v1\_ami\_2 X0)\wedge(m1\_subset\_1 X0 (u1\_struct\_0 k1\_ami\_3)))\Rightarrow \\ &(\forall X1.((v1\_ami\_2 X1)\wedge(m1\_subset\_1 X1 (u1\_struct\_0 k1\_ami\_3)))\Rightarrow \\ &(k4\_ami\_3 X0 X1 = k3\_xtuple\_0 np\_3 k1\_xboole\_0 (k10\_finseq\_1 X0 X1))) \end{aligned} \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k3\_xtuple\_0 X0 X1 X2 = k4\_tarSKI (k4\_tarSKI X0 X1) X2 \quad (22)$$

Assume the following.

$$k1\_ami\_3 = g1\_extpro\_1 np\_2 k1\_ami\_2 (k1\_funct\_7 k5\_numbers k1\_ami\_2) k3\_scm\_inst k3\_ami\_2 k4\_ami\_2 k9\_ami\_2 \quad (23)$$

Assume the following.

$$\forall X0.(v1\_ami\_2 X0) \Leftrightarrow (X0 \in k2\_ami\_2) \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ & (\forall X1.((v1\_ami\_2 X1) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 (u1\_compos\_1 k1\_scmfsa\_2)) \Rightarrow ((X2 = \\ & k8\_scmfsa\_2 X0 X1) \Leftrightarrow (\exists X3.((v1\_ami\_2 X3) \wedge (m1\_subset\_1 X3 \\ & (u1\_struct\_0 k1\_ami\_3))) \wedge (\exists X4.((v1\_ami\_2 X4) \wedge (m1\_subset\_1 \\ & X4 (u1\_struct\_0 k1\_ami\_3)))) \wedge ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = k4\_ami\_3 \\ & X3 X4)))))))))) \end{aligned} \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.k2\_tarSKI X0 X1 = k2\_tarSKI X1 X0 \quad (26)$$

Assume the following.

$$\forall X0.(v5\_compos\_0 X0) \Rightarrow (\neg v1\_xboole\_0 X0) \quad (27)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(l1\_extpro\_1 X1 X0) \Rightarrow ((v1\_extpro\_1 X1 X0) \Rightarrow \\ & (X1 = g1\_extpro\_1 X0 (u1\_struct\_0 X1) (u2\_struct\_0 X1) (u1\_compos\_1 \\ & X1) (u1\_memstr\_0 X0 X1) (u2\_memstr\_0 X0 X1) (u1\_extpro\_1 X0 X1))) \end{aligned} \quad (28)$$

### Theorem 1

$$\begin{aligned} & \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ & (\forall X1.((v1\_ami\_2 X1) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ & (k2\_compos\_0 (u1\_compos\_1 k1\_scmfsa\_2) (k8\_scmfsa\_2 X0 X1) = np\_3)) \end{aligned}$$