

t26\_ff\_siec

(TMN1oSyeViCxdTg1tFJSuyLPhbTcxL7t8fN)

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Let  $v1\_net\_1 : \iota \Rightarrow o$  be given. Let  $l1\_petri : \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k16\_ff\_siec : \iota \Rightarrow \iota$  be given. Let  $k15\_ff\_siec : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_net\_1 : \iota \Rightarrow \iota$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_relat\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(v1\_relat\_1 X1) \Rightarrow (\forall X2. \\ & (v1\_relat\_1 X2) \Rightarrow (k3\_relat\_1 (k2\_xboole\_0 X0 X1) X2 = k2\_xboole\_0 \\ & (k3\_relat\_1 X0 X2) (k3\_relat\_1 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(v1\_relat\_1 X1) \Rightarrow (\forall X2. \\ & (v1\_relat\_1 X2) \Rightarrow (k3\_relat\_1 X0 (k2\_xboole\_0 X1 X2) = k2\_xboole\_0 \\ & (k3\_relat\_1 X0 X1) (k3\_relat\_1 X0 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.k2\_xboole\_0 X0 k1\_xboole\_0 = X0 \quad (3)$$

Assume the following.

$$\forall X0.k3\_relat\_1 (k4\_relat\_1 X0) (k4\_relat\_1 X0) = k4\_relat\_1 X0 \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_net\_1 X0) \wedge (l1\_petri X0)) \Rightarrow ((k3\_relat\_1 (k5\_relat\_1 \\
& (k1\_net\_1 X0) (u4\_struct\_0 X0)) (k4\_relat\_1 (u1\_struct\_0 X0)) = \\
& k5\_relat\_1 (k1\_net\_1 X0) (u4\_struct\_0 X0)) \wedge ((k3\_relat\_1 (k5\_relat\_1 \\
& (k2\_relat\_1 (k1\_net\_1 X0)) (u4\_struct\_0 X0)) (k4\_relat\_1 (u1\_struct\_0 \\
& X0)) = k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) (u4\_struct\_0 X0)) \wedge \\
& ((k3\_relat\_1 (k4\_relat\_1 (u4\_struct\_0 X0)) (k5\_relat\_1 (k1\_net\_1 \\
& X0) (u4\_struct\_0 X0)) = k5\_relat\_1 (k1\_net\_1 X0) (u4\_struct\_0 X0)) \wedge \\
& ((k3\_relat\_1 (k4\_relat\_1 (u4\_struct\_0 X0)) (k5\_relat\_1 (k2\_relat\_1 \\
& (k1\_net\_1 X0)) (u4\_struct\_0 X0)) = k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 \\
& X0)) (u4\_struct\_0 X0)) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k1\_net\_1 X0) \\
& (u1\_struct\_0 X0)) (k4\_relat\_1 (u4\_struct\_0 X0)) = k5\_relat\_1 ( \\
& k1\_net\_1 X0) (u1\_struct\_0 X0)) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 \\
& (k1\_net\_1 X0)) (u1\_struct\_0 X0)) (k4\_relat\_1 (u4\_struct\_0 X0)) = \\
& k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) (u1\_struct\_0 X0)) \wedge ((k3\_relat\_1 \\
& (k4\_relat\_1 (u1\_struct\_0 X0)) (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 \\
& X0)) = k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 X0)) \wedge ((k3\_relat\_1 \\
& (k4\_relat\_1 (u1\_struct\_0 X0)) (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 \\
& X0)) (u1\_struct\_0 X0)) = k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) \\
& (u1\_struct\_0 X0)) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 \\
& X0)) (k4\_relat\_1 (u4\_struct\_0 X0)) = k5\_relat\_1 (k1\_net\_1 X0) ( \\
& u1\_struct\_0 X0)) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 \\
& X0)) (u1\_struct\_0 X0)) (k4\_relat\_1 (u4\_struct\_0 X0)) = k5\_relat\_1 \\
& (k2\_relat\_1 (k1\_net\_1 X0)) (u1\_struct\_0 X0)) \wedge ((k3\_relat\_1 (k4\_relat\_1 \\
& (u4\_struct\_0 X0)) (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 X0)) = \\
& k1\_xboole\_0) \wedge ((k3\_relat\_1 (k4\_relat\_1 (u4\_struct\_0 X0)) (k5\_relat\_1 \\
& (k2\_relat\_1 (k1\_net\_1 X0)) (u1\_struct\_0 X0)) = k1\_xboole\_0) \wedge ( \\
& (k3\_relat\_1 (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 X0)) (k4\_relat\_1 \\
& (u1\_struct\_0 X0)) = k1\_xboole\_0) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 \\
& (k1\_net\_1 X0)) (u1\_struct\_0 X0)) (k4\_relat\_1 (u1\_struct\_0 X0)) = \\
& k1\_xboole\_0) \wedge ((k3\_relat\_1 (k4\_relat\_1 (u1\_struct\_0 X0)) (k5\_relat\_1 \\
& (k1\_net\_1 X0) (u4\_struct\_0 X0)) = k1\_xboole\_0) \wedge ((k3\_relat\_1 ( \\
& k4\_relat\_1 (u1\_struct\_0 X0)) (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 \\
& X0)) (u4\_struct\_0 X0)) = k1\_xboole\_0) \wedge ((k3\_relat\_1 (k5\_relat\_1 \\
& (k1\_net\_1 X0) (u4\_struct\_0 X0)) (k4\_relat\_1 (u4\_struct\_0 X0)) = \\
& k1\_xboole\_0) \wedge (k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 \\
& X0)) (u4\_struct\_0 X0)) (k4\_relat\_1 (u4\_struct\_0 X0)) = k1\_xboole\_0)))))))))))))
\end{aligned}$$

(5)

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_net\_1 X0) \wedge (l1\_petri X0)) \Rightarrow ((k3\_relat\_1 (k5\_relat\_1 \\
& (k1\_net\_1 X0) (u4\_struct\_0 X0)) (k5\_relat\_1 (k1\_net\_1 X0) (u4\_struct\_0 \\
& X0)) = k1\_xboole\_0) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 \\
& X0)) (u4\_struct\_0 X0)) (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) \\
& (u4\_struct\_0 X0)) = k1\_xboole\_0) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k1\_net\_1 \\
& X0) (u4\_struct\_0 X0)) (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) ( \\
& u4\_struct\_0 X0)) = k1\_xboole\_0) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 \\
& (k1\_net\_1 X0)) (u4\_struct\_0 X0)) (k5\_relat\_1 (k1\_net\_1 X0) (u4\_struct\_0 \\
& X0)) = k1\_xboole\_0) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 \\
& X0)) (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 X0)) = k1\_xboole\_0) \wedge \\
& ((k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) (u1\_struct\_0 \\
& X0)) (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) (u1\_struct\_0 X0)) = \\
& k1\_xboole\_0) \wedge ((k3\_relat\_1 (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 \\
& X0)) (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) (u1\_struct\_0 X0)) = \\
& k1\_xboole\_0) \wedge (k3\_relat\_1 (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 \\
& X0)) (u1\_struct\_0 X0)) (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 \\
& X0)) = k1\_xboole\_0)))))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X0) \wedge (v1\_relat\_1 X1)) \Rightarrow (v1\_relat\_1 \\
(k2\_xboole\_0 X0 X1)) \tag{7}$$

Assume the following.

$$\forall X0. v1\_relat\_1 (k4\_relat\_1 X0) \tag{8}$$

Assume the following.

$$\forall X0. \forall X1. v1\_relat\_1 (k3\_relat\_1 X0 X1) \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((v1\_net\_1 X0) \wedge (l1\_petri X0)) \Rightarrow (k16\_ff\_siec X0 = k2\_xboole\_0 \\
& (k5\_relat\_1 (k1\_net\_1 X0) (u1\_struct\_0 X0)) (k4\_relat\_1 (u4\_struct\_0 \\
& X0)))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((v1\_net\_1 X0) \wedge (l1\_petri X0)) \Rightarrow (k15\_ff\_siec X0 = k2\_xboole\_0 \\
& (k5\_relat\_1 (k2\_relat\_1 (k1\_net\_1 X0)) (u1\_struct\_0 X0)) (k4\_relat\_1 \\
& (u4\_struct\_0 X0)))
\end{aligned} \tag{11}$$

Assume the following.

$$\forall X0. \forall X1. k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \tag{12}$$

**Theorem 1**

$$\forall X0.((v1\_net\_1 X0) \wedge (l1\_petri X0)) \Rightarrow ((k3\_relat\_1 (k16\_ff\_siec X0) (k16\_ff\_siec X0) = k16\_ff\_siec X0) \wedge ((k3\_relat\_1 (k16\_ff\_siec X0) (k15\_ff\_siec X0) = k16\_ff\_siec X0) \wedge ((k3\_relat\_1 (k15\_ff\_siec X0) (k15\_ff\_siec X0) = k15\_ff\_siec X0) \wedge (k3\_relat\_1 (k15\_ff\_siec X0) (k16\_ff\_siec X0) = k15\_ff\_siec X0))))$$