

# t11\_latsum\_1 (TMPgKvjEW- QMdGkQAcP7J4wHUbcThQ1tDMyo)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v1\_lattice3 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_latsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  be given. Let  $k4\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\
 & X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\
 & (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v3\_orders\_2 X1) \wedge ((v4\_orders\_2 \\
 & X1) \wedge ((v5\_orders\_2 X1) \wedge ((v1\_lattice3 X1) \wedge (l1\_orders\_2 X1)))))) \Rightarrow \\
 & (\forall X2. (X2 \in u1\_struct\_0 X0) \Rightarrow (m1\_subset\_1 X2 (u1\_struct\_0 \\
 & (k1\_latsum\_1 X0 X1))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. ((l1\_orders\_2 X0) \wedge (l1\_orders\_2 X1)) \Rightarrow ( \\
 & (v1\_orders\_2 (k1\_latsum\_1 X0 X1)) \wedge (l1\_orders\_2 (k1\_latsum\_1 \\
 & X0 X1)))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. (l1\_orders\_2 X0) \Rightarrow (\forall X1. (l1\_orders\_2 X1) \Rightarrow (\forall X2. \\
 & ((v1\_orders\_2 X2) \wedge (l1\_orders\_2 X2)) \Rightarrow ((X2 = k1\_latsum\_1 X0 X1) \Leftrightarrow \\
 & ((u1\_struct\_0 X2 = k2\_xboole\_0 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge \\
 & (u1\_orders\_2 X2 = k2\_xboole\_0 (k2\_xboole\_0 (u1\_orders\_2 X0) (u1\_orders\_2 \\
 & X1)) (k4\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 \\
 & X1) (u1\_struct\_0 X1) (u1\_orders\_2 X0) (u1\_orders\_2 X1))))))
 \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \tag{4}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ & X0) \wedge ((v5\_orders\_2 X0) \wedge ((v1\_lattice3 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\ & (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v3\_orders\_2 X1) \wedge ((v4\_orders\_2 \\ & X1) \wedge ((v5\_orders\_2 X1) \wedge ((v1\_lattice3 X1) \wedge (l1\_orders\_2 X1)))))) \Rightarrow \\ & (\forall X2.(X2 \in u1\_struct\_0 X1) \Rightarrow (m1\_subset\_1 X2 (u1\_struct\_0 \\ & (k1\_latsum\_1 X0 X1)))))) \end{aligned}$$