

# 19\_afvect01 (TMd- jYSASyWZ5aNAa4KzTmdKZ13Wg2ian7eb)

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Let  $v7\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_afvect0 : \iota \Rightarrow o$  be given. Let  $l1\_analoaf : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r2\_diraf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_analoaf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v7\_struct\_0 X0) \wedge ((v1\_afvect0 X0) \wedge (l1\_analoaf \\ &X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ &(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\ &(u1\_struct\_0 X0)) \Rightarrow ((r2\_diraf X0 X1 X2 X3 X3) \Rightarrow (X1 = X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v7\_struct\_0 X0) \wedge ((v1\_afvect0 X0) \wedge (l1\_analoaf \\ &X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ &(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r2\_analoaf X0 X1 X2 X2 X1) \Leftrightarrow \\ &(\exists X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \wedge (\exists X4. (m1\_subset\_1 \\ &X4 (u1\_struct\_0 X0)) \wedge ((r2\_diraf X0 X1 X2 X3 X4) \wedge ((r2\_diraf X0 X1 \\ &X3 X3 X2) \wedge (r2\_diraf X0 X1 X4 X4 X2)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (l1\_analoaf X0) \Rightarrow (l1\_struct\_0 X0) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge (l1\_analoaf X0)) \Rightarrow (\forall X1. \\ &(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 \\ &(u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow \\ &(\forall X4. (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow ((r2\_diraf X0 X1 \\ &X2 X3 X4) \Leftrightarrow ((r2\_analoaf X0 X1 X2 X3 X4) \vee (r2\_analoaf X0 X1 X2 X4 X3))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_analoaf X0)) \Rightarrow ((v1\_afvect0 \\
& \quad X0) \Leftrightarrow ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow ((r2\_analoaf X0 X1 X2 X3 X3) \Rightarrow (X1 = X2)))))) \wedge (( \\
& \quad \forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 \\
& \quad X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\
& \quad X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5. \\
& \quad (m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 X6 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow (((r2\_analoaf X0 X1 X2 X5 X6) \wedge (r2\_analoaf X0 \\
& \quad X3 X4 X5 X6)) \Rightarrow (r2\_analoaf X0 X1 X2 X3 X4)))))) \wedge ((\forall X1.(m1\_subset\_1 \\
& \quad X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& \quad X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\exists X4. \\
& \quad (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \wedge (r2\_analoaf X0 X1 X2 X3 X4)))))) \wedge \\
& \quad ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.( \\
& \quad m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& \quad (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 \\
& \quad X6 (u1\_struct\_0 X0)) \Rightarrow (((r2\_analoaf X0 X1 X2 X4 X5) \wedge (r2\_analoaf \\
& \quad X0 X1 X3 X4 X6)) \Rightarrow (r2\_analoaf X0 X2 X3 X5 X6)))))) \wedge ((\forall X1. \\
& \quad (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow (\exists X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \wedge \\
& \quad (r2\_analoaf X0 X1 X3 X3 X2)))) \wedge (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\
& \quad X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\
& \quad (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow ((r2\_analoaf X0 X1 X2 X3 X4) \Rightarrow (r2\_analoaf X0 X1 \\
& \quad X3 X2 X4))))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow ((v2\_struct\_0 X0) \Rightarrow (v7\_struct\_0 X0)) \tag{6}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v7\_struct\_0 X0) \wedge ((v1\_afvect0 X0) \wedge (l1\_analoaf \\
& \quad X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\neg (X1 \neq X2) \wedge (\forall X3.(m1\_subset\_1 \\
& \quad X3 (u1\_struct\_0 X0)) \Rightarrow ((\neg (X1 \neq X3) \wedge (r2\_diraf X0 X1 X2 X2 X3)) \wedge (\forall X4. \\
& \quad (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow (\neg (X4 \neq X5) \wedge ((r2\_diraf X0 X1 X2 X4 X5) \wedge ((r2\_diraf \\
& \quad X0 X1 X4 X4 X2) \wedge (r2\_diraf X0 X1 X5 X5 X2))))))))))
\end{aligned}$$