t20_yellow18 (TMLJ9zjzvjH377D9HKaq3FojFxFWfGcV5xd)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v11\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v12\_altcat\_1 : \iota \Rightarrow o$ be given. Let $l2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $r2\_yellow18 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $v1\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_altcat\_1\ X0) \wedge (l2\_altcat\_1\ X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((v2\_altcat\_1\ X1) \wedge (l2\_altcat\_1\ X1))) \Rightarrow ((r2\_yellow18\ X0\ X1) \Leftrightarrow ((u1\_struct\_0\ X1 = u1\_struct\_0\ X0) \wedge (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X1)) \Rightarrow (\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X1)) \Rightarrow (\forall X7.(m1\_subset\_1\ X7\ (u1\_struct\_0\ X1)) \Rightarrow (((X5 = X2) \wedge ((X6 = X3) \wedge (X7 = X4))) \Rightarrow ((k1\_altcat\_1\ X0\ X2\ X3 = k1\_altcat\_1\ X1\ X6\ X5) \wedge (\neg (k1\_altcat\_1\ X0\ X2\ X3 \neq k1\_xboole\_0) \wedge ((k1\_altcat\_1\ X0\ X3\ X4 \neq k1\_xboole\_0) \wedge (\exists X8.(m1\_subset\_1\ X8\ (k1\_altcat\_1\ X0\ X2\ X3)) \wedge (\exists X9.(m1\_subset\_1\ X9\ (k1\_altcat\_1\ X0\ X3\ X4)) \wedge (\exists X10.(m1\_subset\_1\ X10\ (k1\_altcat\_1\ X1\ X6\ X5)) \wedge (\exists X11.(m1\_subset\_1\ X11\ (k1\_altcat\_1\ X1\ X7\ X6)) \wedge ((X10 = X8) \wedge ((X11 = X9) \wedge (k5\_altcat\_1\ X1\ X7\ X6\ X5\ X11\ X10 \neq k5\_altcat\_1\ X0\ X2\ X3\ X4\ X8\ X9)))))))))))))))))))))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0) \wedge (l2\_altcat\_1\ X0)) \wedge ((\neg v2\_struct\_0\ X1) \wedge (l2\_altcat\_1\ X1))) \Rightarrow ((r2\_yellow18\ X0\ X1) \Rightarrow (r2\_yellow18\ X1\ X0)) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0)))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v11\_altcat\_1\ X1)\wedge((v12\_altcat\_1\ X1)\wedge(l2\_altcat\_1\ X1)))))\Rightarrow((r2\_yellow18\ X0\ X1)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\neg(k1\_altcat\_1\ X0\ X2\ X3\neq k1\_xboole\_0)\wedge((k1\_altcat\_1\ X0\ X3\ X2\neq k1\_xboole\_0)\wedge(\exists X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\wedge(\exists X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X1))\wedge((X4=X2)\wedge((X5=X3)\wedge(\exists X6.(m1\_subset\_1\ X6\ (k1\_altcat\_1\ X0\ X2\ X3))\wedge(\exists X7.(m1\_subset\_1\ X7\ (k1\_altcat\_1\ X1\ X5\ X4))\wedge((X7=X6)\wedge(\neg((v1\_altcat\_3\ X6\ X0\ X2\ X3)\Rightarrow(v2\_altcat\_3\ X7\ X1\ X5\ X4))\wedge((v2\_altcat\_3\ X6\ X0\ X2\ X3)\Rightarrow(v1\_altcat\_3\ X7\ X1\ X5\ X4)))))))))))))))) \tag{3}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0)))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v11\_altcat\_1\ X1)\wedge((v12\_altcat\_1\ X1)\wedge(l2\_altcat\_1\ X1)))))\Rightarrow((r2\_yellow18\ X0\ X1)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\neg(k1\_altcat\_1\ X0\ X2\ X3\neq k1\_xboole\_0)\wedge((k1\_altcat\_1\ X0\ X3\ X2\neq k1\_xboole\_0)\wedge(\exists X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\wedge(\exists X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X1))\wedge((X4=X2)\wedge((X5=X3)\wedge(\exists X6.(m1\_subset\_1\ X6\ (k1\_altcat\_1\ X0\ X2\ X3))\wedge(\exists X7.(m1\_subset\_1\ X7\ (k1\_altcat\_1\ X1\ X5\ X4))\wedge((X7=X6)\wedge(\neg(v1\_altcat\_3\ X6\ X0\ X2\ X3)\Leftrightarrow(v2\_altcat\_3\ X7\ X1\ X5\ X4)))))))))))))))$$