$(1 \cong 0) \cong (1 \wedge 0 \wedge 0_{XY} \forall X, Y \in Ob(C))$

December 31 2019

$$
\begin{array}{l}
(1 \cong 0) \Rightarrow \\
\forall X, Y \in Ob(C)\ \exists ! 1^X \in X \to 1 \wedge \\
\exists ! Y^0 \in 0 \to Y \Rightarrow \\
\exists ! 0_{XY} \in X \to Y = Y^0 \cdot 0^1 \cdot 1^X
\end{array}
\qquad \text{(to)}
$$

$$
\begin{array}{l}
(1 \wedge 0 \wedge 0_{XY} \forall X, Y \in Ob(C)) \Rightarrow \\
(\forall X, Y \in Ob(C) \exists ! 0_{XY} \in X \to Y \Rightarrow \\
(0_{10} \in 1 \to 0 \wedge \\
\forall Z \in Ob(C) \exists ! Z^0 \in 0 \to Z \wedge \\
\forall Q \in Ob(C) \exists ! 1^Q \in Q \to 1) \Rightarrow \\
0_{10} \cdot 1^0 = 0^0 = 1_0 \wedge \\
1^0 \cdot 0_{10} = 1^1 = 1_1 \Rightarrow \\
(1 \cong 0)
\end{array}
\qquad \text{(from)}
$$