You can write your homework completely in HybLang! We are tasked to show that

$$\frac{\mathcal{L}_{\mathsf{L}}}{c \times (m \in \{0, 1\}) :} = \frac{\mathcal{L}_{\mathsf{R}}}{c \times (0, 1)} = \frac{\mathcal{L}_{\mathsf{R}}}{c \times (0, 1) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (0, 1)} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times (m \in \{0, 1\}) :} = \frac{c \times (m \in \{0, 1\}) :}{c \times$$

are interchangeable. This obviously not the case, since the distinguishing program

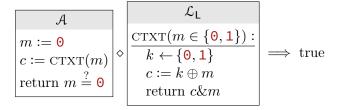
$$\mathcal{A}$$

$$m := \mathbf{0}$$

$$c := \text{CTXT}(m)$$

$$\text{return } m \stackrel{?}{=} \mathbf{0}$$

always returns true when linked to library L. Since we have



and

$$\begin{array}{c|c}
\mathcal{A} & \mathcal{L}_{\mathsf{R}} \\
m := \mathbf{0} \\
c := \mathsf{CTXT}(m) \\
\mathsf{return} \ m \stackrel{?}{=} \mathbf{0}
\end{array} \diamond \boxed{\begin{array}{c}
\mathcal{L}_{\mathsf{R}} \\
\mathsf{CTXT}(m \in \{\mathbf{0}, \mathbf{1}\}) : \\
c \leftarrow \{\mathbf{0}, \mathbf{1}\} \\
\mathsf{return} \ c
\end{array}} \implies 1/2$$

so we know that

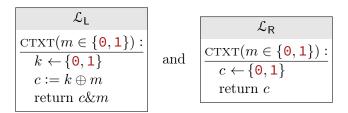
$$\mathcal{A}$$

$$m := \mathbf{0}$$

$$c := \text{CTXT}(m)$$

$$\text{return } m \stackrel{?}{=} \mathbf{0}$$

is a distinguishing program, so it is not the case that



are interchangeable, thus proving a counterexample of the claim.