$$\begin{tikzcd}
 & a^0 \times 0 \arrow[dl, bend right, "1^{a^0}"'] \arrow[dr, bend left, "eval"] \arrow[d, dashed, shift right, "1^{a^0}\times id_0"'] & \\
 & 1 \times 0 \arrow[u, dashed, shift right, "\widehat{0^a\circ p_0}\times id_0"'] \arrow[dl, "p_1"] \arrow[dr, "0^a\circ p_0"] \arrow[d, dashed, "id_1\times a^0"] & \\
1 & 1 \times a \arrow[l, "p_1"] \arrow[r, "p_a"] & a
\end{tikzcd}$$

$$1^{a^0} \times id_0 \text{ unique } \wedge$$
$$\widehat{0^a \circ p_0} \times id_0 \text{ unique } \wedge$$
$$id_0 \text{ unique } \wedge$$
$$1^{a^0} \times id_0 \circ \widehat{0^a \circ p_0} \times id_0 = (1^{a^0} \circ \widehat{0^a \circ p_0}) \times id_0 \implies \tag{from}$$
$$(1^{a^0} \circ \widehat{0^a \circ p_0}) \times id_0 \text{ unique } \implies$$
$$1^{a^0} \circ \widehat{0^a \circ p_0} \text{ unique } \in 1 \to 1 \implies$$
$$1^{a^0} \circ \widehat{0^a \circ p_0} = id_1$$

$$1^{a^0} \times id_0 \text{ unique } \wedge$$
$$\widehat{0^a \circ p_0} \times id_0 \text{ unique } \wedge$$
$$id_0 \text{ unique } \wedge$$
$$\widehat{0^a \circ p_0} \times id_0 \circ 1^{a^0} \times id_0 = (\widehat{0^a \circ p_0} \circ 1^{a^0}) \times id_0 \implies \tag{to}$$
$$(\widehat{0^a \circ p_0} \circ 1^{a^0}) \times id_0 \text{ unique } \implies$$
$$\widehat{0^a \circ p_0} \circ 1^{a^0} \text{ unique } \in 0^{a^0} \to 0^{a^0} \implies$$
$$\widehat{0^a \circ p_0} \circ 1^{a^0} = id_{a^0}$$

$$a^0 \cong 1 \blacksquare$$