



$$\begin{aligned}
& h \circ f = i \circ g \\
& \forall X \in Ob(C), \forall \langle p, q \rangle \in B \rightarrow X \times C \rightarrow X \\
& \quad \exists ! r \mid r \circ h = p \wedge r \circ i = q \\
& \forall X \in Ob(C), \forall \langle p, q \rangle \in B \rightarrow X \times C \rightarrow X \\
& \quad pf_X!(p, q) := \text{unique } r \mid r \circ h = p \wedge r \circ i = q \\
& \forall X \in Ob(C) \forall \{p, q\} \subseteq B \rightarrow X \\
& \quad p \circ f = q \circ f \implies p = q
\end{aligned}$$

$$x \in D \rightarrow X \mid x \circ i = y \circ i \wedge h \circ f = i \circ g \implies$$

$$\begin{aligned}
& (x \circ h) \circ f = x \circ (h \circ f) \\
& \quad = x \circ (i \circ g) \\
& \quad = (x \circ i) \circ g \\
& \quad = (y \circ i) \circ g \\
& \quad = y \circ (i \circ g) \\
& \quad = y \circ (h \circ f) \\
& \quad = (y \circ h) \circ f \implies
\end{aligned}$$

$$x \circ h = y \circ h$$

$$x = pf_X!(x \circ h, x \circ i) = pf_X!(y \circ h, y \circ i) = y \implies$$

$$i \text{ is epic}$$

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pushout of epic is epic ■